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The American Journal of Urology

EDITED BY
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OF NEW YORK

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VOL. IV
JANUARY-DECEMBER, 1908

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THE AMERICAN JOURNAL OF UROLOGY

VOL. IV.

JANUARY, 1908.

No. 1

CHOICE OF ANESTHESIA FOR OPERATIONS ON THE GENITO-URINARY TRACT.

By DR. M. KROTOSZYNER, San Francisco.

KEEN designates as ideal anesthesia the one that combines absence of pain and consciousness with absence of any danger to life. While it is doubtful if this ideal will ever be accomplished, nevertheless it can be said that to-day we can reduce dangers arising from the administration of an anesthetic, by carefully selecting that method of anesthesia which according to strict indications seems to be the most suitable, to a minimum. This is particularly true for anesthetics in operative procedures on the genito-urinary tract, where all known methods of anesthesia can be easily and successfully applied.

The danger of sudden death occurring during the course of a general narcosis was always known and its gravity appreciated by the profession. While it is admitted that, under favorable conditions, this danger can be reduced (professional anesthetists, drop-method, etc.), nevertheless fatal accidents from general anesthesia are occurring even in large clinics where general narcoses are applied under most favorable conditions. I have seen two deaths from general anesthesia at von Bergmann's clinic in Berlin.

As numerous, though, as these accidents may be (Gurlt stated in his last statistics that one death occurred to 2075 chloroform-narcoses), this danger arising from general anesthesia seems insignificant compared with its grave after-effects. Through careful pathologic and microscopic examinations of organs of patients who have died from the after-

effects of a chloroform-narcosis, B. Mueller¹ found that the most dangerous effect of chloroform consists in a grave lesion of the internal parenchymatous organs (fat-metamorphosis of heart, lungs, liver, brain, kidneys). Heretofore ether was considered deleterious only through causing increased secretion of mucus, and thus producing, under certain conditions (advanced age, etc.), a pneumonia. But ether, as it was found,² possesses, like chloroform, the faculty of producing a fat-metamorphosis in parenchymatous organs, the intensity of which is directly proportional to the narcotizing value of the drug, so that pathologic changes in parenchymatous organs caused by chloroform are much severer than those produced by the weaker narcotic—ether. After one prolonged chloroform-narcosis liver- and kidney-cells showed that ominous fat-metamorphosis that appears in the form of fine fat-droplets. The same phenomena—in a less marked and less extensive form—have been observed after one prolonged ether-narcosis. These pathologic conditions are considerably intensified if a narcosis is repeated within 24 hours (abundant fat in cells of parenchymatous organs). Animals (dogs) who died after repeated narcoses showed the same changes in their organs that are generally seen in men whose death was caused by a protracted chloroform narcosis.

The belief that mixtures of different narcotics produce a less dangerous narcosis is also erroneous. Pathologic changes in the different organs vary according to the preponderance of a certain anesthetizing agent in the mixture, but the main features of the lesions are about the same that are characteristic of chloroform- or ether-narcoses. Mixed narcotics are according to B. Mueller³ even more dangerous in their grave after-effects, since a combined toxic effect takes place.

It seemed appropriate to accentuate these facts in connection with the subject of this paper. For knowing these deleterious by- and after-effects of general anesthesia, we are not only justified, but it is our duty, to carefully study the merits, the possible advantages and disadvantages of other methods, and to weigh their relative risks to the patient.

¹ Uber Fettmetamorphose. *Arch. f. Klin. Chir.*, 1905.

² L. c.

³ *D. Med. Wochenschrft.*, No. 8, 1905.

Since the publication of a treatise upon spinal anesthesia by Tait and Cagliari⁴ of San Francisco, I have continuously operated with this method of anesthesia, and after an experience of many years I can highly recommend it, especially for operations on the genito-urinary tract. I have consistently worked with tropacocaine, and only for a short time did I conduct a number of medullary narcoses with stovaine, instigated by the enthusiastic reports of German surgeons (Sonnenberg, Bier). But I quickly returned to my well-tried tropacocaine, which I always used pure; i. e., without admixture of one of the preparations of the adrenal gland. To my great satisfaction, I find that others⁵ after experimenting with pure tropacocaine. I usually bring the tropacocaine in powder into the lumen of a glass-syringe fastened to the needle that has entered the spinal canal in the third or fourth lumbar intervertebral space. Spinal fluid is drawn into the lumen of the syringe, the powder permitted to dissolve and fluid plus powder slowly injected into the canal. The operation is begun five minutes after sealing the spinal puncture, and in the majority of instances analgesia is satisfactory for our field of work. The border of the anesthetic zone was generally found to be a horizontal line drawn through the umbilicus. As a rule anesthesia was found to last at least 45 minutes, and the longest anesthesia observed was 1 hour and 40 minutes.

A good technique is a *conditio sine qua non* for the continuous success with spinal analgesia. I think that many of those instances, where no analgesia ensues after spinal puncture, are due to a faulty technique. Only practice will in time teach to avoid those errors. One of the most frequent reasons for the non-appearance of analgesia—and this is a point that I have not found mentioned in the abundant literature on this subject—is the fact that the tip of the needle will often slip out of the spinal canal while the powder is being dissolved in the spinal fluid. Thus the fluid is injected into the

⁴ *Occid. Med. Times*, 1900.

⁵ Schwartz reports (*Presse Medicale*, No. 64, 1906) upon 3000 spinal anesthetics with tropacocaine. Peter DeFranceschi (*Wiener Med. Presse*, No. 41, 1906) reports upon 200 successful anesthetics with the same drug, of which he used much larger doses than I did.

paraspinal tissue, or, in other words, it is not reinjected into the canal. It is therefore advisable not to draw up more with other drugs, have found equally good and stable results than half a syringe of spinal fluid, and, after the powder is dissolved, to slowly draw up a little more. By these means one is assured that the tip of the needle is still in place, and that the fluid is really reinjected into the spinal canal.

I have, like others, seen disagreeable symptoms during and after spinal analgesia. Singultus, vomiting, symptoms of collapse, a certain restlessness and muscular tremor, incontinence of feces and urine, are occasionally observed during spinal anesthesia, while headache, slight rise of temperature, and retention of urine were the most prominent disagreeable after-effects. While these symptoms are disagreeable, they compare favorably with the violent by- and after-effects of the average general narcosis, and besides it looks as if with growing experience these undesirable symptoms become less intense and do not occur as frequently as formerly. A fatal accident after spinal anesthesia I have fortunately not experienced so far. There are a few instances in which analgesia was absent, in spite of an apparently faultless technique. This occurred in a much larger percentage of my cases where stovaine was used, and was the main reason why I abandoned this drug. Since working with tropacocaine and making sure that the fluid returns to the spinal canal, failures in obtaining analgesia occur very rarely indeed.

Summing up my experience with spinal anesthesia with tropacocaine, I arrive at the following conclusions: In the presence of faultless asepsis the subarachnoidal injection of about 0.06 (1 grain) tropacocaine, if the cerebro-spinal fluid is used as the dissolving medium, can be considered as a procedure devoid of danger to life. It is a comfortable and satisfactory method of anesthesia for all operations on the genito-urinary tract, and in the great majority of instances insures satisfactory analgesia for this field up to the umbilicus. It is the method of choice in old and decrepit individuals and drinkers, in arteriosclerosis, tuberculosis, chronic suppurations, conditions that often need very large amounts of chloroform or ether, and are always faring badly under and after general narcosis.

Spinal anesthesia is only rarely contraindicated in urological surgery. Children who can be narcotized quickly and with small amounts of chloroform or ether, and women, who as a rule are too nervous to permit the operator to do his work successfully as long as they are conscious of some manipulations being done on their body, are better reserved for general narcosis. Otherwise I consider, like Legueu, the presence of the patient's consciousness during the operation rather an advantage. Due to this fact I obtained twice the permission for removal of a tubercular testicle, which during the operation was discovered to be hopelessly diseased.

There is still among surgeons an objection or rather a disinclination towards spinal anesthesia, on account of the unsafety of the method. Fuster,⁶ who is an ardent advocate of spinal anesthesia, found 8.9% failures, but a more general application of the method for its classic field—the pelvis—will in time enable us to avoid these failures, or rather increase the scope of its reliability. Personally I consider spinal anesthesia with tropacocaine in the majority of cases a method alike valuable to physician and patient, which, barring a few drawbacks mentioned above, is safe and reliable, and should, whenever possible, replace general narcosis for operations on the genito-urinary tract.

At the same ratio that spinal is destined to replace general anesthesia for operations on the genito-urinary tract, the former should yield to local anesthesia. This has the advantage over general and spinal anesthesia that we can anesthetize circumscribed areas without affecting the whole organism. This is particularly true of the comparatively new methods of regional—and infiltration—anesthesia, by which a satisfactory analgesia with such small doses of cocaine or other anesthetizing agents can be produced, that no general toxic effect ensues.

Since devoting more time and pains to perfecting the technique of this mode of anesthesia, I have been agreeably surprised by the satisfactory results obtained in operations, where heretofore spinal or general anesthesia seemed indispensable (varicocele, hydrocele). Operations on the penis can always be successfully done under regional anesthesia as

originated by Oberst. By a piece of rubber or a Nelaton-catheter the penis is constricted, and a few drops of a 1% cocaine-solution are injected into the dorsal and perineal side of the penis. It is essential to wait ten minutes before beginning with the operation, when anesthesia is complete.

Infiltration-anesthesia has the disadvantage of blurring the texture of the different layers of tissue, and to make anatomical localization difficult; this is a great drawback, especially in operations on the scrotum (epididymotomy). Besides, by infiltration-anesthesia micro-organisms may be spread beyond the area of invasion. Here local injections of a 2% solution of beta-eucaine, which is supposed to be four times less toxic than cocaine or of alypin, which according to Lohnstein is even less toxic, and a reliable anesthetic for urological work, will yield a satisfactory anesthesia without the danger of general intoxication. Local anesthesia is well applicable in genito-urinary surgery, because the field of operation is far away from the vision of a nervous patient, and with good technique and the patient's attention at the same time being distracted, all the minor and many of the so-called major operative procedures on the genito-urinary tract can by these means be successfully carried out.

In cystoscopic work, including ureteral catheterization. I have for several years past almost exclusively worked without any anesthesia. Nitze in his early work used 60 cc. of a 4% cocaine-solution to anesthetize the bladder-wall for cystoscopy, and like others of his pupils I considered a cystoscopy impracticable without local anesthesia. Later on I began to work with smaller doses of cocaine, and finally made it a rule to limit local anesthesia to a few cases, where, on account of extreme sensitiveness (irritable bladder, tuberculosis, etc.), the injection of a small dose of cocaine or eucaine into the posterior urethra appeared to be indicated. Of course there are exceptional cases (contracted bladder from protracted pyuria, etc.), where cystoscopy is only possible under spinal or general anesthesia. Here, however, spinal anesthesia should be the method of choice, since repeated general narcoses at short intervals are, as mentioned above, particularly deleterious.

In conclusion I wish to accentuate, that general narcosis

should be reserved for those patients and such operations of the urinary organs where other anesthetizing methods cannot be applied. If possible general narcosis should be combined with spinal anesthesia, for I have seen that an inhalation-narcosis done after spinal anesthesia was followed by much shorter and less severe disagreeable sequels than an ordinary narcosis, and that a much smaller amount of the narcotic sufficed to produce complete abolition of pain and consciousness.

THE BLADDER NECK AND ONE OF ITS DISEASES.¹

By DR. R. L. RIGDON, Monterey.

THERE is some confusion of ideas as to the exact meaning of the term "bladder neck," some authors understanding it to include the whole musculature which controls the exit of urine from the bladder, while others limit it to the circular fibers which surround the vesical meatus.

Anatomically speaking the bladder has no neck, the urethra joining that viscus immediately, the passage from the one to the other being abrupt. If the bladder be opened from above, the vesical orifice appears as a small break in the vesical surface, scarcely depressed below the surrounding tissue.

Physiologically we note the same abrupt junction of the bladder and urethra. When a catheter is introduced into a full bladder and gently withdrawn, a very sharply defined line of demarkation between the bladder and the urethra is noted. As the eye of the catheter engages in the orifice the outflow of urine is impeded and then abruptly ceases at the exact moment the distal extremity of the eye is grasped by the urethra. Yet the term "bladder neck," anatomically and physiologically a misnomer and filled with confusion, is of much service in clinical urology. The term does not seem to be synonymous with prostate, nor with prostatic urethra,

¹ Read before branch of American Urological Society at Monterey, April, 1907.

and yet both these structures are more or less closely associated with it. Keyes, in his writings, seems to identify it with the internal vesical sphincter, meaning by this those aggregated circular vesical fibers surrounding the urethral orifice, while Morris, in his Anatomy, states that "the only neck that can be assigned to the bladder is represented by the prostate and prostatic urethra." This lack of clearness of definition has led to corresponding confusion in the conception of pathologic conditions affecting the part.

In view of the fact that there is a distinct morbid condition known to affect the fibers immediately surrounding the vesical orifice and independent of changes in other related parts, it would seem wise to limit the term vesical neck to the portion of the canal embraced by these fibers.

In these days of acute and careful study of even seemingly unimportant details of disease, and when every surgeon is expected to take nothing for granted, even though it be the dicta of revered authority, but must examine and prove for himself, it occurred to me that it would be interesting and perhaps profitable to devote a little time to a study of some of the well-known claims concerning the deep or posterior urethra; first, with reference to its normal clinical length, and relation of urethra to bladder; second, as to the limits and position of the bladder neck; and third, touching some of the abnormal conditions sometimes presented in these parts.

First: Anatomically, the deep urethra is two inches in length, three-fourths inch being assigned to the membranous and one and one-fourth to the prostatic portion. A series of measurements was made in the Cooper College Genito-Urinary Clinic to determine the physiological or clinical length of this portion of the canal; incidentally the total urethral length was also noted. The question was investigated in twenty-one patients, with the following results:

No.	TOTAL LENGTH				LENGTH OF DEEP URETHRA			
I	20.3	cm.	8	Inches	4.	cm.	I 10 ¹ / ₁₆	Inches
2	18.	"	7 1 ¹ / ₁₆	"	3.5	"	6 9 ¹ / ₁₆	"
3	21.5	"	8 8 ¹ / ₁₆	"	3.	"	I 2 ¹ / ₁₆	"
4	19.3	"	7 10 ¹ / ₁₆	"	3.5	"	I 9 ¹ / ₁₆	"
5	18.3	"	7 4 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
6	18.6	"	7 9 ¹ / ₁₆	"	3.1	"	I 3 ¹ / ₁₆	"
7	19.3	"	7 10 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
8	19.1	"	7 8 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
9	19.3	"	7 10 ¹ / ₁₆	"	3.5	"	I 6 ¹ / ₁₆	"
10	19.6	"	7 12 ¹ / ₁₆	"	3.8	"	I 8 ¹ / ₁₆	"
11	19.3	"	7 10 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
12	20.3	"	8	"	3.8	"	I 8 ¹ / ₁₆	"
13	17.7	"	7	"	2.8	"	I 2 ¹ / ₁₆	"
14	21.5	"	8 8 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
15	19.8	"	7 14 ¹ / ₁₆	"	4.4	"	I 12 ¹ / ₁₆	"
16	18.6	"	7 6 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
17	19.1	"	7 8 ¹ / ₁₆	"	3.8	"	I 8 ¹ / ₁₆	"
18	21.5	"	8 8 ¹ / ₁₆	"	5.	"	2	"
19	16.8	"	6 10 ¹ / ₁₆	"	2.5	"	I	"
20	20.8	"	8 4 ¹ / ₁₆	"	3.2	"	I 4 ¹ / ₁₆	"
21	19.3	"	7 10 ¹ / ₁₆	"	2.2	"	14 ¹ / ₁₆	"

The average total length of this series of twenty-one cases is 7.7 inches, or 19.2 cm.

The average length of the deep urethra is 1.33 inches, or 3.4 cm.

The only one of the series in which the deep urethra measured 2 inches, 5 cm., was that of a patient aged about thirty-five, who had a large amount of residual urine associated with a sacculated bladder. The remaining cases were for the most part examples of chronic urethritis or cystitis. Some of the patients were short and stout, some tall; in some the penis appeared long, and in others short. The greatest total urethral length was 8 8-16 inches, 21.5 cm.; the shortest was 6 10-16 inches, 16.8 cm. The extremes of the deep urethral length were two inches, 5 cm., and one inch, 2.5 cm.

The series of cases presented is too small to produce an absolute average, but is significant as showing the considerable variation that may be encountered. Generalizations will not be attempted.

The general configuraton of the patient did not appear to have any essential bearing upon the urethral length.

Second: As to the relation of the deep urethra and bladder when the bladder is fully distended. It has been claimed that when the bladder is distended beyond the normal the internal vesical sphincter is overcome and the prostatic urethra opens out and becomes a part of the bladder, the urine being

retained by the action of the external sphincter. To test this point the catheter was introduced into the bladder until the eye was just grasped by the internal sphincter, and in such position that if it were introduced a fraction of an inch further the urine would begin to flow. This marked the position of the vesical meatus with the bladder almost empty. Fluid was now injected until the bladder was overdistended, and as the distension increased the catheter was observed, to note if the water would begin to flow, thereby indicating that the sphincter had begun to open. In some cases as much as twenty ounces were introduced, causing marked distress and a decided desire to urinate, but there was no evidence that the vesical sphincter had yielded to the pressure.

The amount of distension of the bladder necessary before the sphincter would be overcome was not determined because of pain, but it was very evident that physiologically the bladder is emptied long before this point is reached. It would appear that only under most exceptional circumstances would the prostatic urethra become one with the bladder cavity in health, and it may be doubted if this condition obtains even in acute or chronic retention, except in those cases in which the obstruction is severe and is situated in the membranous or spongy urethra.

Third: Some of the conditions affecting the bladder neck.

Of the well-known and universally recognized diseases I will not speak, but I desire to call the attention of the section to one which is common but not often recognized.

Several years ago I had the honor of reporting a number of cases to this Society of what is termed, following the French writers of a generation ago, "Contracture of the vesical neck." Since that report I have met numerous instances in which a similar diagnosis was made. The symptoms presented are those of obstruction to urination, cystitis and chronic posterior urethritis. Examination shows the urethra free from obstruction until the examining bulb reaches the neck of the bladder, that is, has passed through the membranous and the greater part of the prostatic urethra, but at this point permanent resistance is met with. Sometimes the constriction is slight, or it may be marked. With this constriction more or less residual urine is present. The cys-

titis is an epiphenomenon. The chronic posterior urethritis that is present may precede or follow the development of this vesical stricture. The condition is present in both young men and old, but it is most frequent in those of advanced years.

In the diagnosis an accurate determination of the urethral length is necessary, for the symptoms presented are largely those of enlarged prostate. In the latter disease it is well known that the deep urethra is elongated, but in contracture of the vesical neck the length of the urethra is not affected. It is safe to assume that in those patients presenting the complexus of symptoms noted, if the length of the deep urethra does not exceed $1\frac{1}{2}$ inches, 3.8 cm., the condition is not one of prostatic hypertrophy, unless the hypertrophy be wholly of the lateral variety, but is one of contracted vesical neck. This statement I will not attempt to amplify, but will suggest that it is of much importance in arriving at a correct diagnosis.

A PECULIAR METHOD OF SEXUAL GRATIFICATION IN A MAN OF 70, WITH A MISHAP.

By L. BUCKLE, M. D., New York.

HISTORY.—A. M., aged seventy, perfectly rational, married for the last 48 years; his wife is still alive and they are living together. He has several married children, the oldest being 45 years of age.

He is a sufferer from rheumatism and a victim of spermatorrhea. Sexually he has been impotent for many years. He looks emaciated, anemic, and listless.

He has not had a proper erection for the last 10 years. He frequently practices masturbation and feels a peculiar satisfaction in doing that. Of late he discovered that when he puts his finger in the rectum and keeps on "rubbing," as he expresses it, he succeeds in getting the penis properly erected and ejaculation is more satisfactory. This mode of exciting his genital organ gave him entire satisfaction for many months.

On Nov. 24, '07, about 10 A. M., he felt that he must "excite" himself and, as usual tried this long successful trick of his. He "rubbed and rubbed" the rectum but, this time, could not get the least erection of his genital organ. He tried over and over again, but to no avail. Being strongly excited and laboring under a peculiar nervous impulse, he got hold of a broom-stick, sawed off a long piece of it, greased it with some fat and forced it into the rectum, pushing it higher and higher up. This had the desired effect and, he says, he enjoyed it immensely. But at this point, at the acme of excitement, his entire body was shaking, his hands trembling, and in another second the greasy stick was all in the rectum and slipped from his fingers.

After regaining his self-possession, he thought he could easily get it out by straining a little at stool. That day he went to toilet a number of times, straining with all his might until blood showed and the rectum prolapsed; but the stick failed to come out.

At 9 P. M. he retired an exhausted man. He slept at intervals only. He was up early on the next day and renewed his visits to the toilet, straining even more forcibly than the previous day; but to no avail. Worried, anxious, fatigued, and disappointed, he again retired for the night. He slept for the first 2 or 3 hours; the rest of the night he was restless and planning how to get rid of the stick. He at last found hope in one thought: namely, if he had a pair of forceps he, most probably, could pull it out. He got up early in the morning and obtained a pair of rusty large forceps. He took a hot bath with the hope that this would facilitate matters and began his work with the forceps. At first he was a little careful; but soon became desperate and began to manipulate the instrument wildly; he neither cared for the pain he caused himself by repeatedly pulling on the mucous membrane of the rectum, nor for the blood that was now freely oozing. After considerable torture and disappointed work, he grew faint and exhausted. At last, after having the stick in the rectum for two days, he decided to go to the doctor.

He was hardly able to walk; but he managed to drag himself into my office on the morning of Nov. 26, '07, about

11 A. M. In painful words he recited the history of the case and begged, with tears in his eyes, to keep the matter away from his children so that they may not learn of this shameful act of his.

Examination.—Inserting the index finger into the rectum, I could, with difficulty, feel the thick and rough end of the stick. The mucous membrane was red, the sphincter relaxed and the rectum prolapsed.

Straining brought the end of the stick only as far as the tip of the coccyx and no more.

After some pretty hard work and without any anesthetic, I succeeded in extracting the stick. It was covered with fecal matter and blood and mucus. It measures $7\frac{1}{2}$ inches in length and $1\frac{3}{8}$ inches in diameter.

That a man of three score and ten, an invalid for many years, who, has been married for forty-eight years, whose wife is still living with him should resort to such a peculiar method of exciting his genital organ, that such a large stick should bury itself entirely in the rectum, is certainly unique and makes the case worth reporting.

A METHOD FOR REDUCING PARAPHIMOSIS.

Nemery (*Revue int. de med. et de chir.*, February, 1907) recommends the following method for reducing paraphimosis. He takes a thin layer of absorbent cotton and soaks it in equal parts of a 10 per cent. solution of cocain and 1:1000 solution of adrenalin. He applies this layer of cotton to the glans and the edematous portion of the prepuce and keeps it in place for about fifteen minutes by a moderately tight bandage. When the cotton is removed the edema has almost completely disappeared and the reduction of the paraphimosis can be easily accomplished in the usual manner.

A COMPARATIVE STUDY OF DRUGS COMMONLY USED IN URETHRAL AND BLADDER IRRIGATION.

By J. W. MILLER, M. D., Cincinnati, O.

IRRIGATION of the urinary tract has now become so firmly established a method in the treatment of diseased conditions that it is of interest to review the various drugs most commonly used. "Irrigation has a two-fold object; to cleanse the urethra and bladder of bacteria and accretions of pus adherent to its walls, and to stimulate the superficial layer of the urethra and vesical walls to exfoliation, so that a healthy surface from which regeneration of the tissue will take place may remain" (Casper). It is almost farcical when we investigate the subject and see the number of drugs recommended; hence it is well to limit ourselves to the study of a few remedies that time and experience have taught us are of inestimable value in urinary disease. From constant use we soon learn what to expect from a given preparation, and can thereby select with nicety the drug suitable for each individual case. We may divide the drugs used in making solutions for irrigating into three classes:

1. Cleansing and mildly antiseptic.
2. Antiseptic.
3. Strongly antiseptic.

In the first class we have isotonic salt solution, boracic acid, sodium benzoate and fluid extract of hydrastis, non-alcoholic. Under antiseptic solutions: Potassium permanganate, nitrate of silver, and the organic silver compounds such as protargol, argyrol, largin, etc. The strongly antiseptic drugs would include bichloride of mercury, formaldehyde, and carbolic acid.

"*Normal salt solution* (0.6 per cent.) is one of our most valuable therapeutic agents used for irrigating" (Heineck). It is non-toxic and the question of cost does not have to be considered. "It does not coagulate albuminous fluids and has a mild hemostatic action" (Hayem). It can be prepared with reasonable accuracy, by dissolving a teaspoon-

ful of salt in a pint of boiled and filtered water. The indications for the use of this valuable remedy are many. Probably its most valuable use in urology is as a preliminary douche in subacute and chronic cystitis. It is preferable that it be warmed. It can be employed to advantage for irrigating the urethra according to the Janet or the Diday methods in acute and subacute gonorrhea. In acute retention from prostatic enlargement and catheterization the residuum is generally to be replaced by a mild antiseptic, preferably normal salt solution.

Boric acid. This well-known and commonly used drug is feebly germicidal. "Bacteriological experiments show that it has little more effect in killing germs that has salt and water" (White and Martin). It has a soothing effect on mucous membranes, and as a wash for the bladder it gives great relief in cases of cystitis. "It holds a place in bladder lavage from which it will not be easily dislodged" (Keyes). It rarely causes toxic symptoms. Sometimes even in dilute solutions it is decidedly irritating. When the mucous membrane will not receive the solution kindly, as denoted by pain immediately after irrigating or after the act of urination, it would suggest to us to stop all local treatment or change our solution as to strength or preparation. As pulverized boracic acid dissolves very slowly, it is better to use the granular form. It is one of the safest preparations to place in the hands of the patient when we instruct him in the technic of auto-irrigation. In the diagnosis of chronic posterior urethritis, a warm saturated solution (4 per cent.) is used to wash out the anterior urethra and also for the recovery of shreds.

Benzoate of soda. The uniformly good results obtained with this salt given internally in inflammations of the genito-urinary tract led to its use locally, it having replaced salicylic acid to some extent. It is an efficient disinfectant and germicide. I am of the opinion, however, that the chief value of these mild antiseptics in the treatment of specific urethritis depends more upon their action as general cleansing agents than upon any destructive action upon the gonococcus.

Hydrastis Canadensis. The non-alcoholic preparation

having mildly astringent and hemostatic action when properly diluted, may be applied to the most delicate surfaces without irritation. It is excellent in all forms of catarrh, and is very soothing to all inflamed mucous membranes. Acute and chronic cystitis, with frequency of micturition and pain, is often entirely relieved after the use of hydrastis. When combined with other medicinal substances, such as zinc sulphate or lead acetate, it will be found to be exceedingly useful in cases of chronic gonorrhea where localized areas of mucous membrane of the urethra are in a state of chronic catarrhal or granular inflammation often spoken of as "gleet."

We must not expect too much in diseased conditions that have extended over a long period from the drugs mentioned under "mildly antiseptic." They are merely forerunners of the more active preparations to be mentioned later. Few of us would think of using silver nitrate or formaldehyde in the urinary bladder before first testing the sensibility of the mucous membrane of our patient with one of the cleansing solutions herein mentioned. "Disregarding the patient's sensitiveness and causing him to suffer, can not be too strongly condemned" (Keyes). This flushing with a mild solution is always indicated as a preliminary when concentrated applications are to be made, in order that full benefit may be derived.

Antiseptics. This is the most important class to consider.

Potassium permanganate. Janet's irrigation treatment has stood the test of years, and though he has changed the details of his method of procedure many times, he still continues the use of permanganate. A solution of this salt in urethral and bladder infection, by reason of its oxidizing power, is largely employed as an antiseptic to destroy the pathogenic cocci. Permanganate in solution rapidly deteriorates; therefore it is better to purchase the drug in tablet form and make a fresh solution with distilled water when needed. It is an energetic disinfectant of the mucous membrane, and by removing mechanically and washing away accumulated secretions, makes a less favorable medium for the growth of the coccus. This drug meets the indications

in the treatment of acute gonorrhea in that it is unirritating and antiseptic; does not coagulate albumin; is capable of a certain power of penetration, and nearly free from astringent properties in the strength of 1 to 10,000. "Permanganate also causes an edematous swelling of the epithelial cells, which inhibits the growth of colonies of bacteria" (Morton). It is therefore useful in treating nonspecific and septic urethritis. "This drug is to the urethra what the silver salts are to the bladder" (Keyes). It may produce complications, but in my experience not more so than other drugs mentioned under antiseptics. This, I believe, is usually due to mechanical irritation. Either the technic of irrigation followed is wrong, or we have dropped into a routine and have not been sufficiently careful in the selection of cases for this method.

Nitrate of silver. The remedy *par excellence* in disinfecting the urethra and bladder and lessening suppuration is nitrate of silver. Its action on mucous membranes is astringent and antiseptic. "Its astringent action is attributed to the contraction of the bloodvessels and also to the formation of a protective layer of coagulated albumin; its antiseptic properties to its action in coagulating the proteids of the micro-organisms, and partly from the specific effects of the metal" (Cushny). It is sometimes resorted to as a preventive of acute gonorrheal urethritis. "Next to the use of a protector, the best prophylactic is a solution of silver nitrate" (Kopp). About one drachm of a 1 in 30 solution is injected and is left for some little time in contact with the urethral walls. This procedure is attended with such intense pain and ardor urinae that the nitrate has largely been replaced by the use of the newer silver compounds. In the abortive treatment, as in prophylaxis, it is advisable in all cases to employ a less irritating drug. In acute gonorrhea after inflammatory symptoms have abated under the use of boracic acid or normal salt solution the use of silver nitrate may be instituted. The most convenient manner to make solutions is to have a definite quantity of the salt in solution, so that one grain is contained in every drachm of distilled water. This stock solution is to be kept in an amber-colored bottle. Beginning with a solution of 1 to 10,000, the

strength may be cautiously increased, being graduated according to the sensitiveness of the patient. Other conditions in which the nitrate will be found to be one of the most trustworthy agents in urology are: Chronic urethritis, prostatitis, spermato-cystitis (after massage), and the general cystitis of enlarged prostate, stone and tumor. We generally employ a solution in the strength of 1 to 5,000 to 1 to 500 in cystitis. No drug mentioned will prove as satisfactory in this condition. As long as the urine is rendered clearer and symptoms are diminishing we know our treatment is effective. Any evidence of irritation is a signal that the dose is too strong or too frequently repeated; or it may be best to change to another remedy, or to desist from all local treatment.

Organic silver compounds. These new non-irritating remedies have assumed a place in urology which has long ceased to be an experiment. They are now regarded as specifics in the treatment of urethritis. These organic silver salts are not precipitated by chlorides nor by albumin. They have the power of penetrating into the submucosa and are non-corrosive. The bactericidal power varies, and the amount of silver which a compound contains does not indicate its activity (Therapeutic Committee, British Medical Association, August 18, 1906), and therefore we may clinically disregard this point. Derby's comparison (*Boston Medical and Surgical Journal*, September 29, 1906) shows "the bacterial action of protargol is efficient, though not so efficient as silver nitrate. Largin, silver protalbin, is an efficient bactericide. The bactericidal power of argyrol is weak." As before mentioned, the bactericidal power of these remedies has little to do with their clinical value. With the microscope it is easy to demonstrate their great value in specific urethritis, confirming the reports and comments of many observers. They are important acquisitions to modern therapy as prophylactics, and in the so-called "abortive" treatment of gonorrhea have almost replaced silver nitrate, principally because they do not cause irritation and thereby tend to aggravate the disease and damage the urethra. As preventives of gonorrhea about one drachm of a 1 per cent. solution of protargol or a 20 per cent. solu-

tion of argyrol is injected and held in the urethra five or ten minutes. If the use of these solutions is begun at the very onset, the disease will be well under control within a few days. Organic silver salts may be used in the bladder when silver nitrate is found too irritating. Protargol is employed for irrigating in the strength of 1 to 1,000, argyrol 0.5 to 5 per cent. Always use fresh solutions.

We now come to that class of drugs listed under "strongly antiseptic." These drugs have a place in urology, but as several cases of poisoning have been recorded from the use of even the most dilute solutions their popularity for irrigating purposes is on the wane.

Bichloride of mercury. This is probably the most active germicide. As this salt of mercury often produces a painful reaction, we make it less irritating by adding one drachm of sodium chloride to each pint of water. It was formerly largely employed in specific urethritis in the strength of 1 to 20,000, gradually increased to 1 to 12,000 to 1 to 3,000. Its use now is largely limited to cases of non-specific and septic urethritis which are relatively few in comparison. "It is a sovereign remedy in tuberculosis of the bladder" (Casper). In the beginning very small amounts are used, about 50 c. c., later this quantity is increased as the bladder becomes tolerant. In these cases it is advised to keep the patient under the influence of morphin for the first few days of treatment.

Formaldehyde. Commercially known as formalin, is an aqueous solution containing not less than 37 per cent. by weight of absolute formaldehyde. "It is a powerful antiseptic and disinfectant, ranking next to mercuric chloride as a germicide" (Potter). Like mercury it is irritating and caution is advised. "Formalin solutions in the strength of 1 to 16,000 to 1 to 8,000 make an excellent medium for irrigating the bladder in preparing patients for cystoscopy" (O'Crowley).

Carbolic acid. Phenol being one of the first antiseptic agents suggested, was at one time employed. It has now been almost abandoned in favor of other agents. A moderately weak solution has produced very severe constitutional

results. This drug is used for urethral and bladder irrigations in the strength of 1 in 500.

We have reviewed hastily the drugs in most common use for irrigating purposes by the urologist in his practice to-day. More necessary than the selection of a remedy is the study of our case. Individualize, for in this way only can we do justice to our patient. Having determined on a given drug, it is well to persist in its use and not to change without good reason. Patience and persistence are as important in this line of work as pure drugs and proper technic.—*Intern. Jour. Surgery.*

[Among the antiseptics the author failed to mention oxycyanide of mercury, which in strengths of 1:10,000 to 1:5,000 makes an efficient and non-irritating solution for irrigation purposes.—EDITOR.]

SPONTANEOUS FRAGMENTATION OF URINARY CALCULI.

THERE can be little doubt that urinary calculi which are giving rise to acute troubles, such as repeated attacks of severe colic, haematuria, pyuria, or sleeplessness, should in practically every case be treated by operation—lithotrity, lithotomy, or nephrotomy, as the case may be. There are, however, many cases in which the patient refuses operation, and many others in which both patient and medical adviser would be only too glad if relief could be brought about by non-operative measures.

It is certain that dieting, and the imbibition of more than the usual quantities of spa waters at places like Carlsbad, have a very beneficial effect in calculous cases. One has a sort of feeling that urinary calculi must surely become smaller and smaller, and presently be passed, if only the urine can be kept dilute enough and in such a condition as to contain a minimum percentage of both inorganic and organic constituents.

One also feels that, provided a patient will honestly restrict his proteid diet, and will conscientiously drink abundantly of good plain water containing a minimum of

salts, particularly salts of calcium, there is really no reason why the benefits of the treatment should not be as great at home as at Carlsbad. There would then be no reason for his daily work to be interrupted, and the course could be continued for a long time instead of for the comparatively short period that an ordinary visit to Carlsbad allows.

ILLUSTRATIVE CASE.

It is, therefore, with the greatest interest that one reads of a case such as that recorded by Dr. T. R. Bradshaw in the *Liverpool Medico-chirurgical Journal*. The patient was eighty years of age. He had led a professional life until he was nearly seventy; he then retired, but still lived an active life. When he was sixty years old he began to pass small uric acid calculi per urethram, and this trouble had continued at intervals ever since. The calculi passed in this way were of the "mustard-seed" type. The urine was almost always acid, pale, but otherwise normal, except that on standing it usually gave rise to a cayenne pepper deposit of uric acid crystals. For several years past the bladder had been irritable, with the result that there was frequent micturition at night.

Haematuria was noticed for the first time a little over three years ago, and it recurred periodically. The quantity of blood passed was generally small. It was increased by exercise, and it was uniformly mixed with the urine. Everything pointed to there being a renal calculus. This was confirmed by skiagraphy. The X-rays showed two calculi in the right kidney. Shortly after this there were some attacks of acute renal colic. Operation was suggested, but it was not thought to be advisable for several reasons, amongst which was the patient's age.

Six months after the renal colic occurred, fragments of calculus began to be passed repeatedly, and this continued for some months. The fragments were not small calculi; they were definitely portions of large calculi. They were concave on one surface, convex upon the other, like bits of a hazel nut that has been crushed to pieces in the nut-crackers. It was clear that the renal calculus was shedding concentric layers from its surface; in other words, it was undergoing

spontaneous concentric fragmentation. The patient soon found himself quite restored to health. He could take active exercise without its inducing haematuria as it did before. He felt that he had got rid of something. This fragmentation of a renal calculus spontaneously must be a comparatively rare thing; but even the possibility of its occurrence is not to be gathered from the ordinary text-books.

If the stone can break up spontaneously, it must be from disintegration or solution of the material which unites one layer of the stone to another. This being so, it is a welcome confirmation of the belief that calculi may be cured by medicinal and dietetic means.

If the calculi are causing dangerous symptoms, operation should not be postponed, of course; but if the symptoms are not those of danger, and particularly when the patient first comes under observation, it is well worth while to try and cure them by a conscientious course of treatment by dieting and water-drinking, not at a spa, but at home. Dr. Bradshaw's is not the only case of spontaneous fragmentation of urinary calculi upon record; a considerable number have been collected together from the literature in Bradshaw's paper.

TREATMENT.

The treatment adopted in his case was very simple. The calculi were composed almost entirely of uric acid. The objects aimed at were, therefore, to reduce the nitrogenous intake to the smallest amount compatible with the maintenance of nutrition, to keep up a free flow of urine, and to maintain the general health by moderate exercise, regularity of life, and the avoidance of fatigue. He gave up drinking wine, ate vegetables, white fish, and milk puddings to his lunch and dinner, and only partook of butcher's meat occasionally. Potassium citrate was given to the extent of 5 grains once or twice a day from time to time, especially when pieces of calculus were being passed; he never had enough to make the urine alkaline.

Healthy urine is so constituted that it is seldom in a state of complete saturation even when cold. At the temperature of the body it is probably one of the most powerful

solvents that we can hope to possess for all the ingredients that are likely to exist in urinary calculi. The circumstances which Dr. Bradshaw regards as having combined to bring about the disintegration of the calculi in his case, and in others like it, are very simple, but probably they are not frequently found together. They are:

1. The maintenance of the urine in a healthy condition;
 2. The presence in the urine of abundance of water, and
 3. The reduction to a minimum of the products of nitrogenous waste.
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THE NEWER DERMATOLOGIC REMEDIES.

WE take the following resumé from our excellent contemporary, *The Hospital*:

The spirit of conservatism, so characteristic of those who practice the healing art, has caused its influence to be felt in dermatology as much as in other branches of medical science. In one way this is not altogether a disadvantage, for a salutary check is thus provided against the too rapid or wholesale adoption of insufficiently tested therapeutic methods. While it is not evidence of progress to decry the value of every established remedy for skin diseases simply because it does not happen to be the very latest synthetic chemical product, it must yet be recognized that in certain directions real advances in treatment have taken place. The days are long past, it is hoped, when zinc ointment externally and arsenic internally were the sum-total of treatment for every skin case. How different it all is now! The carefully prepared lotion, nicely tempered to suit the degree of inflammatory reaction; the keratolytic plaster or paste for loosening and getting rid of proliferating horny cells; the determined yet discriminating caustic, with its special affinity for attacking disease-foci while leaving healthy skin soundly alone; the beneficent healing and cicatrising effect of the Finsen light and the X-rays in many cutaneous disorders, and the employment of the latter for ringworm of the scalp; the improved methods for the ad-

ministration of mercury in syphilis; and, more recently still, the introduction, by cataphoresis, of certain chemical "ions" for rodent ulcer and a few other affections. These, and many more besides, are among the ways and means which the modern dermatologist has at his disposal for the adequate treatment of skin diseases.

Since the introduction of ichthyol into therapeutics by Unna this drug has continued to rise in popularity and usefulness for many skin affections. There is no denying the fact that the skin tolerates sulphur when organically combined better than when employed in its elemental form. It is not at all uncommon to meet with bad cases of general dermatitis due to the too vigorous rubbing in of the ordinary sulphur ointment, whereas the ichthyol-sulphonate of ammonium does not so easily produce inflammatory reaction. Ichthyol, in addition to being strongly anti-parasitic, has the valuable properties of being able to reduce inflammation, and therefore to relieve pain and tension in the affected parts. For this purpose it may be painted upon the diseased area, *e. g.*, a patch of subacute eczema, with a brush, using one drachm to the ounce of water. A favorite application is a 5 per cent. salve, with Lassar's paste, or equal parts of the ung. zinci and lanolin, as the basis. In chronic eczema it may be used stronger, and in combination with a little salicylic acid. In rosacea the good effect of the familiar compound sulphur ointment, so frequently prescribed, appears to be enhanced by the addition to it of a small quantity of ichthyol.

The tonic effect of the drug upon the vaso-motor system renders it of further use in those conditions accompanied by morbid flushing, and urticarial or erythematous phenomena. It is convenient to administer it in pill form, beginning with a small dose, two minims, thrice daily, after meals, increasing up to five minims. Common acne, many of the erythemata, chronic urticaria, including the giant form, and especially rosacea, are nearly always benefited by ichthyol internally. The sodium salt of the sulphonic acid of a synthetically-prepared sulpho-oil, known as thigenol, resembles ichthyol in many ways, but it has the advantage of being free from the peculiar odor and taste of the latter.

It is useful in acute or chronic eczema, and scabies, combining well with sulphur ointment, lanoline, or vaseline. The external application of ichthyol is also recommended for the treatment of chilblains, an ointment containing half a drachm to the ounce being rubbed in at night. If ulceration is extensive the dressing is kept on continuously.

The idea of employing brewer's yeast as a remedy for boils is not new. It had long been popularly used in this connection, but Drs. Lassar and Brocq were the first to introduce it seriously and systematically in furunculosis. Even now one hears of stout being recommended for these conditions, not for any stimulant effect, but solely on account of the traces of yeast which it may contain. The specifically active constituent of yeast, a fatty substance, has been isolated by Roos and Hinsberg, and extensive trials have been made with it. Under the name of ceredin (or cerolin) this substance has now been used by many observers, both in this country and abroad, and some really good results have been obtained with it in bad cases of acne pustulosa and furunculosis. It is interesting to note that Dr. Walter Malden, as the outcome of a research undertaken under the auspices of the British Medical Association, found that the effect of subcutaneous injections of yeast upon animals infected with the streptococcus pyogenes or the staphylococcus albus was, in some cases, to cause a recovery of the animals, and in others to prolong their lives. It is best given in pills, containing one-and-a-half grains, commencing with two a day, after meals, and gradually increasing the number according to the effect produced. One point about ceredin is worth remembering; namely, that under its use the tendency of boils to relapse seems to be much diminished.

The beneficial effect of nascent oxygen upon suppurating wounds and indolent ulcerations has long been known. The difficulty and expense of applying it are largely overcome by the use of the peroxides of the metals or of hydrogen. Common ulcers of the leg do very well under applications of zinc peroxide which, in contact with granulation-tissue, slowly evolves oxygen and is itself reduced to the simple oxide. A stimulating, followed by a sedative, effect can thus be produced at will, the salt being employed in

ointment form. Hydrogen peroxide, though more active, is sometimes rather too irritating. The sodden, macerated condition about the feet associated with hyperidrosis can be pleasantly relieved by zinc peroxide.

REGENERATION OF THE PROSTATE AFTER PROSTATECTOMY.

Freudenberg (*Annales de la Policlin. centrale de Bruxelles*, February, 1907) was astonished to find, by rectal examination, some months after the removal of prostates by Fuller's and Freyer's methods, that the finger seemed to feel a normal prostate. He found this to be the case in three patients. In one of these he expressed some opalescent secretion on palpation, although the urine voided before palpation had been clear. On microscopical examination he found that the urine after massage contained normal prostatic secretion. All three patients had preserved their sexual powers after the operation. The removed prostates in these cases were so complete that Freudenberg suspected the possibility of a regeneration of the prostate. It is possible that particles of the gland, which had remained, were the starting points of a regeneration of the organ. We do not know as yet the exact nature of the so-called capsule of the prostate, and it has been claimed that this capsule is nothing but the peripheral portion of the gland, which is compressed in the form of a sheath. The author's observations seem to favor this view. If this regeneration of the prostate is the rule, it is possible that it explains the persistence of sexual power after suprapubic prostatectomy, and the almost regular destruction of sexual power after the perineal operation. The question is certainly one of considerable interest.

EDITORIALS.

SALUTATORY.

IN undertaking the Editorship of THE AMERICAN JOURNAL OF UROLOGY we are not unaware of the difficulty of the task. But if Atlas had stopped to meditate how enormous the weight of the world was, he would never have been able to carry it on his shoulders. All we can do is to try our best and this we promise unequivocally and unreservedly. If we fail, it will be for lack of ability and support; surely not for lack of effort.

 NOT A PERSONAL ORGAN.

The Editor has some decided views on many points—therapeutic points particularly—connected with the vast and important subjects of Urology and Sexology. It is impossible that the editorials should entirely escape being tinctured once in a while with the Editor's views and personality. THE AMERICAN JOURNAL OF UROLOGY, however, is not the Editor's personal organ. It is a journal for specialists and general practitioners interested in the subjects of genito-urinary, sexual, venereal, and skin diseases, and our sole office will be: to attempt to present in its pages the best original, abstracted and translated matter dealing with the above-mentioned specialties.

And this leads us to say a word about the growing importance of the subjects of Urology and Sexology.

 THE GROWING IMPORTANCE OF THE SUBJECT OF
UROLOGY.

The subjects of Urology and Sexology will be growing in importance progressively for many decades to come, because the number of venereal and sexual patients will continue to grow progressively for many decades to come.

This is perhaps to some a startling assertion—but of its correctness we are convinced absolutely. We are aware of the influences tending to counteract the spread of venereal and sexual diseases—sexual instruction, preaching continence, better treatment, societies of moral and sanitary prophylaxis, etc.,—we are aware of them and shall encourage them in every possible way; but all these influences count for very little—we almost said for naught—in counterbalancing the iron economic condition which compels men to delay the marriage-age further and further and which forces married people to limit their offspring to one, two or three children. As a student of economic conditions, we see clearly that for many decades to come men in general will marry at a later and later age, and as long as this state of affairs continues, venereal and sexual diseases will be progressively on the increase. There is plenty of work for specialists in these branches for many years ahead.

This is true also of Dermatology. This branch of medicine has been growing in importance for the last quarter of a century. The causes are: The enormous immigration, and the crowded and unsanitary condition of the tenement houses. Many dermatoses, which twenty-five years ago were curiosities in this country, are now quite common; and are bound to become commoner still.

PROGRESS IN SYPHILOLOGY.

Medicine is now represented by so many earnest and zealous workers, that there is practically no branch which does not show steady improvement and progress from year to year. But no branch of medicine can show such positive advance, such far-reaching discoveries as can the department of syphilology. And all these discoveries have been made within the past three years. The Editor remembers well the evening of May 17th, 1905, on which at the crowded-to-suffocation meeting of the Berlin Medical Society at the Langenbeck-Haus, Schaudinn and Hoffmann announced and demonstrated the *Spirochaeta Pallida* (now the *Treponema pallidum*). The majority of the audience was

skeptical and even von Bergmann, then the president of the Society, was said to have expressed himself in language more strong than elegant about the value of the "alleged discovery." Now the Treponema is accepted almost universally as the etiologic factor of lues. The last three years have also seen the difficult and hitherto impossible feat accomplished of transmitting syphilis to lower animals, especially to the macacus. Then we have recently had the very important work of Metchnikoff, Roux, and Salmon in the prevention and abortion of syphilis. The practical importance of the discovery of the value of a calomel ointment in preventing, and of arsenic injections in aborting the disease can hardly be overestimated. In short, the workers in the specialty of syphilology have cause to be proud of their achievements during the past triennium.

And let us hope that the pages of THE AMERICAN JOURNAL OF UROLOGY will be in a position to record similar progress, achievements equally as important in the years that are to follow.

DEPARTMENT OF MORAL AND SANITARY PROPHYLAXIS

Conducted by Follen Cabot, M. D.

SOME FACTS IN REGARD TO THE PREVALENCE OF SYPHILIS AND GONORRHEA IN THE INNOCENT.

By FOLLEN CABOT, M. D.,

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Statistics show that these diseases are more prevalent and a worse scourge among us to-day than is tuberculosis.

Their awful effects may be considered under six broad headings:

- (1) Mortality;
- (2) Chronic Invalidism;
- (3) Degeneration of Race;

- (4) Race Suicide;
- (5) Suffering of innocents;
- (6) Social and Economic.

A few facts relative to each heading:

(1) *Mortality*.—Of all deaths from pelvic disease in women 80 per cent. are due to gonorrhea. One-half of these deaths are among women who have innocently acquired the disease (married state).

Over 90 per cent. of deaths from paresis and other forms of insanity are due to syphilis.

Over 80 per cent. of deaths from locomotor ataxia and all other brain and chronic spinal diseases are due to syphilis.

In one hospital during ten years 2000 syphilitic children were born, with mortality of over 70 per cent.

Of the deaths from apoplexy, chronic diseases of the lungs, blood vessels, heart, kidneys, and tumors other than cancer, it is estimated that more than 50 per cent. are due directly or indirectly to gonorrhea or syphilis. In a large proportion of these cases the disease was contracted innocently.

(2) *Chronic Invalids*.—Twenty per cent. of all blindness is due to gonorrhea contracted by chance at birth or soon after.

More chronic invalids among married women are to be found than among any other class of women as a result of the ravages of gonorrhea innocently acquired.

(3 and 4) *Degeneration of race and race suicide* may be considered together.

Tarnowsky reports a total of 22 births in 3 syphilitic families. Of these but one became a healthy adult. Of 13 who survived some years 8 were incapable of self-support as the result of physical and mental defects. The remaining 5 were nervous weaklings.

He also reports a syphilitic father of 9 children of which 1 died in infancy, 1 was deaf and dumb, and 2 were idiots.

These facts are by no means exceptional. In France it is estimated that 20,000 children are born dead each year as a result of syphilis. This disease is frequently acquired by chance contact by people in all walks of life.

Of all the involuntary childless marriages more than fifty per cent. are due to gonorrhea. In other cases one child is born and disease prevents more; the so-called one-child sterility.

(4) *Suffering of Innocents.*—It is authoritatively stated that among all women who acquire the disease, syphilis, 25 per cent. to 50 per cent. contract it innocently. Among married women the innocent ones amount to 75 per cent. to 80 per cent. Add to this the hereditary cases and the rapidly increasing number of infections not of the genitals, but which are contracted from nurses, barbers, in restaurants, cigar factories, hotels, bathing places, drinking cups, dentists, etc., it will be seen that of every ten cases of syphilis one or two are innocent sufferers. In this list children form a large percentage. Many married women have to submit to unsexing operations as the result of the ravages of gonorrhea. In many cases the husband is ignorant of the presence of the disease in himself.

(6) *Social and Economic.*—From a consideration of the few sparse facts set down under the previous headings some idea may be obtained of the undermining effect of all this on the social structure. It is almost inconceivable that the few men who realize these facts have been unable to enlist the support necessary to combat the increasing danger. If the cost to the world in suffering and lives could be estimated it would be found far greater than that caused by tuberculosis.

People as a rule have mistaken ideas about these diseases and think the guilty alone suffer, but the facts as stated above show how erroneous is this view. Well-directed measures of a *permanent* nature in the way of *education* will save many lives.

EDUCATIONAL MEASURES TO DIMINISH THE RAVAGES OF THESE SERIOUS DISORDERS AMONG THE INNOCENT.

For nine years the writer of these lines has been laboring through educational methods to interest the medical profession and teach them and the laymen their duty in reference to the above described diseases.

During the past two years some little interest has begun to manifest itself among medical men, but while many suggestions have been made, the need of a *permanent bureau* to carry on the work has become apparent.

The writer has introduced a system of leaflets of instruction to patients at the Presbyterian Hospital, the Post-Graduate and City Hospitals. Other hospitals have followed the system. The writer has no wish to put his name to the front in this work, but feels justified in presenting the following suggestions:

(1) The need of a *Bureau* in connection with some educational institution to provide literature to be sent to hospitals and private physicians explaining the need of educating patients suffering from these disorders.

In this Bureau letters would be answered, and all business pertaining to the study and spread of knowledge carried on by those qualified to do it.

(2) At the Post-Graduate Hospital about 700 graduates in medicine matriculate each year. They come from all over this country and Canada. By appropriate lectures, these men could be educated to the needs of the patients. They would be supplied with literature on the subject and kept so supplied from time to time by the Bureau. All hospitals and dispensaries would be given a supply of leaflets and kept so supplied in the same way.

(3) Boards of Health in the different States and other bodies interested in the health of the people would be communicated with and supplied with all necessary information. In one State the Board of Health is now sending information to the people about these diseases the same as it does about tuberculosis, diphtheria, etc. An attempt would gradually be made to induce other health boards to do the same. This system could gradually be extended so as to include colleges and other lay bodies.

(4) In the women's and children's clinics in the various hospitals in which patients were suffering from one of these diseases a nurse could be sent to the patient's house and explain the need of care to protect the other children in the family from contagion. This need be done only in ex-

ceptional cases, for the leaflet of instruction would, as a rule, be sufficient.

(5) To establish a small magazine or make use of a part of an established medical journal to keep the profession of the country informed on this subject.

(6) The establishment of wards for the cure of these unfortunate persons who have acquired the disease innocently and who need medical care. There is hardly a bed to-day in New York outside of the City Hospital where a person with syphilis or gonorrhea can go. It is a great need. In such a ward physicians might be taught in regard to conditions not seen in Out-Door departments.

(7) To carry on the work in a systematic manner a director and two assistants would be necessary. Men familiar with the needs of these sufferers would be required.

For the routine office work, typewriting, etc., two paid assistants would be necessary.

The literature carefully prepared and sent out by those skilled in this field would, among other things, do great good in counteracting the injurious effects of quacks who prey upon this unfortunate class of sufferers.

A RAPID AND SIMPLE METHOD OF STAINING THE SPIROCHAETA PALLIDA.

(*Bulletin de l'Institut Pasteur*, 1907, page 609.) J. MacNeal Ward recommends the following staining method for the spirochaeta pallida of syphilis. A solution is prepared without heat, by dissolving methyl violet 0.25, methyl blue 0.10, eosin 0.20 in pure methyl alcohol, 100. The slide is placed in this solution for from 45 to 60 seconds. It is then immersed for one or two minutes in 10 cc. of a solution of sodium carbonate of the strength of 1:20,000. The slide is then washed in water, dried, and mounted. The spirochaetæ are deeply colored with this stain.

ABSTRACTS

A CASE OF ACUTE CYSTITIS WITH SLOUGHING OF THE MUCOSA AS THE RESULT OF THE INJECTION OF A STRONG ALKALINE SOLUTION. DEATH FROM ACUTE GENERAL PERITONITIS.

Bouchon (*Revue Pratique des Maladies des Organes génito-urinaires*, September 1, 1907) reports the case of a woman, aged 24, who was admitted, suffering from the symptoms of general peritonitis. Three days previously she had injected with a pointed syringe tip a solution of commercial alkali, into what she thought was the vaginal cavity, for the purpose of inducing abortion. After the injection, there was excruciating pain in the abdomen, vomiting, and a slight discharge of blood from the vulva. She was catheterized on admittance and the bladder was found very much distended, the urine being bloody with blackish fragments. The vagina was uninjured; the faeces contained some blood. The symptoms of acute peritonitis became intense and she died two days after admission. At autopsy, the bladder was found empty and its mucous membrane dark gray and friable. The peritonitis had been caused by a hyperacute cystitis, with gangrene of the mucosa, due to the injection of the strong alkaline solution. The blackish fragments in the urine were pieces of sloughed vesical mucous membrane.

TRAUMATIC STRICTURE OF THE URETHRA IN A CHILD FIVE YEARS OF AGE.

Hebert (*Revue Médicale de Normandie*, June 25, 1907) reports the case of a boy of 5 years, who for twenty-four hours had been unable to pass his urine. A warm bath, poultices upon the abdomen, and diuretic drinks had been without avail. The bladder was distended and reached to the umbilicus. A month previously the child had been injured by a threshing machine which had passed over his body, causing a number of contusions, breaking two teeth,

and producing an ecchymosis of the scrotum and penis, together with discharge of blood from the urethra. The child was suffering from a traumatic stricture. A bougie à boule No. 6, F., was arrested in the peno-scrotal region. A filiform bougie entered the bladder after half an hour's patient effort, and a few drops of urine escaped. On the next day, a No. 6, F., catheter was passed and the urine was evacuated. Dilatation was then employed, gradually increasing to No. 12, F., a treatment being given every three or four days. A stricture was then distinctly felt with an olive-pointed bougie, occupying the perineo-bulbar region. The dilations were continued, and finally an electrolytic dilatation, according to Desnos' method, was performed, dilating the urethra to No. 24, F.

GONORRHEAL PSEUDORHEUMATISM.

ARTHRITIS OF THE CRICO-ARYTENOID JOINTS: TRACHEOTOMY: RECOVERY.—Le Roy des Barres (*Bulletin Médical de l'Indo-Chine française*, February 15, 1907) reports an unusual case observed in a coolie girl, aged 16, who entered the hospital of the Protectorate of French Indo-China, for acute pains in the knees and right wrist. The girl had not yet menstruated and was unmarried. A month before admission, she was seized with fever and pain in all the joints, which later became localized, with redness, heat, and swelling, in the knees and the wrist. On examination, she was found to have an acute gonorrheal urethritis and vaginitis. The proper treatment was applied, but four days after admission she was suddenly taken with an acute pain in the larynx and slight dyspnea, which increased rapidly. The diagnosis lay between an acute infectious laryngitis, and edema of the glottis, due to nephritis, and an arthritis of the cricoarytenoid articulations. The dyspnea became so threatening that tracheotomy had to be performed. On examination the larynx showed swelling of the mucosa covering the arytenoids, but the vocal cords were normal, save at their posterior ends, where there was some edema. The author believes that he had to deal with a gonorrheal cricoarytenoid arthritis. This is a rare compli-

cation of gonorrhea, which has been described particularly by Liebermann and Pirket.

OBSERVATIONS OF THE MOTILITY AND AGGLUTINATION OF THE SPIROCHAETA PALLIDA.

Zabolotny and Maslakowitz (*Roussky Vrach*, March, 1907, page 361) applied Bier's method to the surfaces of chancres and syphilitic papules, and thus obtained some serous fluid which was rich in spirochaetæ. By adding physiological salt solution to this fluid, it was possible to preserve the spirochaetæ alive for many days and to watch the characteristic mobility of the organism. If some serum of a person affected with the later stages of syphilis be added to this fluid, the spirochaetæ become agglutinated in clumps, forming stellate groups within three or four hours. After a while the spirochaetæ which were thus treated underwent important changes. They stained more and more faintly, and showed an increasing number of granules, which gradually became so numerous that they hid the spirochaetæ from view. The authors consider the agglutination phenomenon as a new proof of the specific character of the spirochaetæ.

THE TRANSMISSION OF SYPHILIS TO DOGS.

Hoffmann and Bruning (*Dtsch. med. Wchscrft.*, April 4, 1907) succeeded in inoculating syphilis to rabbits and in transmitting the virus from rabbits to monkeys. This had already been done by Bertarelli, but the present authors went further and inoculated syphilis to dogs. Two of these animals were inoculated in the anterior chambers of their eyes with fragments of a human chancre and both presented a specific keratitis after a period of incubation of from sixteen to twenty-one days.

THE INFLUENCE OF MERCURY UPON THE SPIROCHAETA PALLIDA.

Cappelli and Gavazzeni, of Florence (*Giornale Italiano delle Malattie Veneree e della Pelle*, 1907, No. 4, page 411) investigated the question of the effect of mercury upon the spirochaetæ in moist condylomas. They wished to determine whether Levi-Bing was right in his conclusion that

mercury had a specific and rapid effect upon the spirochaeta and that this organism disappeared directly under the influence of mercurial treatment. The present authors investigated twenty cases of syphilis with condylomata in the anal region, in which they examined the surface of these lesions before and during a course of mercurial injections. They found that the spirochaeta was present throughout the course of the condyloma, from the time the lesion developed until it disappeared, and that in a considerable number of cases injections of mercuric chloride did not produce any appreciable variations in the number, appearance, length, or staining qualities of the parasites, which were always found either upon the surface or within the tissue of the papules. The parasites do not disappear until anatomical changes incident to the healing of the condyloma take place. While they do not urge their conclusions as final, the authors suggest that their observations prove that we do not as yet have sufficient evidence for maintaining that mercury is a direct specific agent against the spirochaeta.

INFLAMMATION OF THE LUMBO-SACRAL NERVE-ROOTS, DUE TO GONORRHEAL INFECTION, MANIFESTED BY SYMPTOMS OF SCIATICA.

Lortat-Jacob and Salomon (*Bullétin de la Société Médicale des Hôpitaux de Paris*, July 4, 1907, page 679) report the case of a man, aged 26 years, who presented all the symptoms of sciatica, including some muscular atrophy and a diminution of the reflexes on the affected side. There was a hyperesthesia along the antero-external border of the thigh, the leg and the foot. This hyperesthesia affected the region supplied by the lumbar roots and by a part of the sacral roots. There was, therefore, a lumbo-sacral radiculitis. The trouble had started in 1906, and since 1905 the patient had suffered from a neglected gonorrhea. Although no gonococci were found in the spinal fluid, which contained more albumin than normally, the authors attribute the infection to gonorrhea.

INTERNAL MEDICATION IN GONORRHEA.

Dr. Joseph Piket (*Berichte d. Versammlung Deut. Naturforscher u. Aerzte*, Sept., 1907) states:

The treatment of gonorrhea taxes all the therapeutic resources at our command, among which internal remedies by no means rank as the least important. Of the latter, the balsams until lately held the dominant position. But in the large doses in which they have to be given, they disturb the gastrointestinal tract and, by the excretion of resinous acids, irritate the kidneys. Occasionally, too, a balsamic erythema or urticaria is observed.

Arhovin, an addition-product of diphenylamine and esterified thymyl-benzoic-acid, is said to be free from all these disadvantages. By reason of its strongly antiseptic components, arhovin possesses a marked disinfectant action, which after its exhibition is still greater, as the remedy—*i. e.*, its decomposition products—renders the urine acid, clears and imparts bacterio-inhibitory properties to that excretion, and thus inhibits the pyogenic cocci. Arhovin is not toxic, has no harmful effect on stomach or intestines, and does not irritate the kidneys. According to Burchard-Schlockow's work, it is absorbed in 20 to 25 minutes, and is excreted in altered form. The acidity of arhovin urine is so marked that usually it remains acid for 14 to 18 days. Pirket's experience with it extends over two years and includes a large number of severe cases, both of acute and chronic gonorrhea, gonorrheal cystitis and complications in the female. He summarizes his opinion as follows: "Arhovin is readily taken and well borne, has no deleterious effect of any kind, limits secretion, hinders gonococcal growth, and possesses a marked sedative action. It is a valuable addition to the armamentarium,—a remedy that no physician will want to dispense with, for a test leads to its permanent adoption."

THE CUTANEOUS REACTION OF VON PIRKET.

Burnet (*Comptes Rendus, dé la Société de Biologie*, June 22, 1907) controlled the experiments of v. Pirket upon five subjects, none of them presenting any clinical symptoms of tuberculosis. In spite of this a very marked reaction appeared upon the skin. The author, therefore, does not attribute to the cutaneous reaction of tuberculin the value claimed for it by v. Pirket. At a later meeting of the Society of Biology, July 13, 1907, Abrami and Burnet reported

that in adults the cutaneous reaction cannot serve as a diagnostic method, as its appearance is inconstant, irregular, and as it appears often quite markedly in quite healthy individuals, while it is not infrequently negative in tuberculous persons.

TREATMENT OF PSORIASIS.

Dr. H. Barendt (*Folia Therapeutica*, April, 1907): The important factor in the treatment of psoriasis is the removal of the scales by rubbing the body every evening with soft soap and the scalp with spirits of soap. The following morning a hot bath is taken, with the aid of a brush and sand soap. If necessary, the process is repeated. The areas free from scales are then treated with chrysarobin ointment, 4 per cent. Though possessed of disadvantages, it is one of the most useful remedies. The surrounding skin is protected by a dusting powder consisting of talcum, starch, and zinc oxide. If the surrounding skin shows reddening, white Precipitate ointment should be substituted for the chrysarobin. In order to hasten the action, 2 to 5 per cent. of salicylic acid may be added. In obstinate cases, 2 to 4 per cent. betanaphthol may be incorporated with the chrysarobin ointment.

Particularly good results were obtained by the author with eugallol, the monoacetate of pyrogallol. In one instance the patient, himself a physician, was never free from psoriasis until eugallol was used. The eugallol was applied with a brush, together with the dusting powder, and a complete cure was obtained. In other cases a single application of the preparation, diluted with acetone, proved sufficient. It is important to remove all inflamed areas, and it is only in this way possible to avoid recurrences. Eugallol is efficient here in cases that have resisted all other treatment.

The prophylaxis of psoriasis calls for the use of arsenic, as Fowler's solution, etc. The underwear should not irritate, hence should not consist of wool. Free perspiration should be encouraged and the fat in the skin increased by the application of olive oil.

INDICATIONS FOR NEPHROTOMY AND NEPHRECTOMY IN
RENAL TUBERCULOSIS.

LAMBERT of Reims (*Revue Pratique des Maladies des Organes Génito-Urinaires*, September 1, 1907), reviews this subject in the light of his own experience, as well as of the published opinions of the principal authorities. Nephrotomy is no longer considered an operation that promises success in tuberculous kidneys. Pousson, Tuffier, etc., perform it only when there is a large pus sac in connection with a tuberculous kidney. Albarran regards nephrotomy as an operation to be performed only exceptionally. Nephrectomy is the operation from which positively curative results may be expected, provided the removal of the kidney be performed in properly selected cases. Three classes of cases may occur: (1) Both kidneys may be tuberculous; (2) one kidney may be tuberculous, while the opposite one is functionally healthy; (3) one kidney may be tuberculous, while the opposite kidney functionates badly. Nephrectomy should not be performed when both kidneys are tuberculous. When one is functionally healthy, nephrectomy should be performed early. If the character of the disease has been well ascertained before the operation, the kidney should be removed without opening it. When one kidney is tuberculous, and the other works badly, nephrectomy is still permissible, for the operation may enable the other kidney to recover its functional integrity.

The question is: When should the operation be performed? Shall we wait until tubercle bacilli appear in the urine? Unfortunately, these germs appear late in the course of the disease, when caseation has already taken place. Therefore, it is important to watch for the early symptoms which make us suspect a renal tuberculosis. Among these, frequency of micturition at night, with normal micturition during the day, is a sign which Bazy considers significant. When this sign is present, a more thorough examination should be made. If the kidney is neither enlarged nor painful, we often find two painful points, the upper and the lower, along the ureter. The former, described by Bazy, is

found outside of the rectus muscle at the level of the umbilicus, where deep pressure evokes pain which radiates along the ureter. The lower painful point in the ureter is felt by vaginal or rectal touch. Pressure upon the point of entrance of the ureter into the bladder produces the uretero-vesical reflex. The cystoscope shows a slight swelling of the ureteral orifice. The most important point, however, is the separation of the urine, which shows on the diseased side the presence of albumin and a diminution of urea, and sometimes renal cells and casts.

THE TREATMENT OF VARICOCELE.

Duclaux (*Le Médecin Praticien*, 1907) says that it is important, before deciding whether or not to operate for varicocele, to know the general condition of the patient and the effect of varicocele upon his system. Many patients with varicocele suffer from headaches, disturbances of the reflexes and of urination, mental and nervous phenomena, hypochondria, etc. In some patients, there is even a tendency to suicide. A study of these various factors will enable us to deduct the indications for operative treatment.

There are varicoceles which *should not be* operated. These are the small or even the medium-sized varicoceles, and especially the indolent or non-painful varicoceles. In this group may be classed also the symptomatic varicoceles, in which treatment should be directed to the cause. There are, next, varicoceles which *may be* operated upon. These are the medium-sized or large varicoceles without any pain, which, however, cause the patient some worry or anxiety. Finally, there are varicoceles which *must be* operated. These are the large varicoceles presenting some degree of reaction and threatening such complications as, for example, phlebitis; varicoceles which cause atrophy of the testicle (in which case the patient should be warned that the atrophy may persist after the operation); small painful varicoceles and finally, all varicoceles in which the patient becomes the subject of neurasthenia or mental disturbances.

Several methods of operation are available—either resection of a part of the scrotum or ligation of the veins or a combination of the two methods. The method of ligation

is sufficient in cases of small varicoceles, with intact scrotum. If the veins are very voluminous, ligature may be completed by the resection and extirpation of the venous bundles. In cases of large varicoceles, without venous dilatation, a simple resection of the scrotum may be sufficient. Unfortunately, this method does not guarantee against relapses. In cases of varicocele with a loose scrotum and varicose veins, the two operations are combined. This is the method of choice and gives the best results. In neurasthenics, a very slight operation, a simple ligature placed upon one of the large veins, results in a complete disappearance of the mental and nervous symptoms.

THE LOCAL AND INTERNAL TREATMENT OF GONORRHEA.

Neisser (*Medicinische Klinik*, March, 1907) says that the treatment of gonorrheal urethritis should be principally, if not exclusively, local, because a prompt cure can only be obtained through a direct and early bactericidal action upon the gonococcus. Neisser prefers irrigations of the urethra, or if the patient cannot have these owing to circumstances, urethral injections of protargol, mixed with 5 per cent. solutions of antipyrin in the acute stage of the disease. The injections are made daily and kept in the urethra for from twenty to thirty minutes. The internal treatment of urethritis is an adjuvant to the local treatment. The balsamics alone are not sufficient to kill the gonococcus, but present the advantage of favoring the action of the silver salts and of mitigating the irritating effect of the latter. Among the balsamics, Neisser found Gonosan to be excellent.

THE AMERICAN JOURNAL OF UROLOGY

VOL. IV.

FEBRUARY, 1908.

No. 2

ABSTRACT OF A SYMPOSIUM ON THE SURGERY OF THE PROSTATE.

By HENRY J. SCHERCK, M. D., St. Louis, Mo.

IN the December issue of the *Annals of Surgery*, just published, appears a most thorough and exhaustive article on surgical progress for the relief of prostate disease. Inasmuch as the views therein expressed embody the latest conclusions by the prominent authorities of Europe, an abstract from it will put our readers in touch with what we believe to be the present status of this branch of surgery.

H. Kummel (Hamburg) emphasises the fact that good operation, also by castration concerning which K. himself had collected numerous statistics, furthermore by means of ligation of the arteria iliaca and resection of the vasa deferentia. Nevertheless, the results are for the most part not to be considered as permanent and since the author believes functional results may be obtained by means of the Bottini that hypertrophy of the prostate should be recognized as an independent local condition in itself, as a tumor, which, like all tumors, must be removed, he considers the intra-capsular prostatectomy as the best therapeutic procedure in these cases; the one which, even though it is the most heroic, guarantees the best results. He, of course, recommends even more emphatically the complete removal of the prostate in carcinoma of that organ. For the diagnosis, he recommends, in all cases, in addition to the usual methods of examination, the use of the cystoscope, which gives an exact insight into the gross anatomical picture.

Concerning the two usual methods of operation, the perineal and the suprapubic, both of which show the same rate of mortality, K. prefers the latter method, since it guarantees a better view of the operative field, an easier removal of any complications which may develop and the easier prevention of any fistula formation. Technically also, it presents fewer difficulties. K. sees, in the suprapubic operation, an important disadvantage in the fact that the patient cannot be allowed to get out of bed so early. He recommends the perineal route in all cases where the enlargement of the organ is for the main part toward the rectum and in very stout individuals.

He had for some time performed the operation under spinal anesthesia using tropococain and adrenalin. In the use of the lumbar anesthesia K. sees a distinct advance which is not to be underestimated, especially since general anesthesia has to be dispensed with in many elderly patients, on account of the heart and lungs.

Schleisinger (Berlin) reports the results at the Jewish Krankenhaus (Prof. Israel), nineteen prostatectomies—operative mortality—3 (one case from pulmonary embolism, a second from coma diabeticum, the third from a post-operative anuria, cause not determined). One death five months after operation from pyelitis. Subsequent course not followed in two cases. One incomplete result in a case of partial prostatectomy. Perfect results in twelve cases. Author recommends caution in the indication for operation on account of the relatively high mortality, though cause of death cannot be ascribed to imperfection in technic.

Almost all operations under lumbar anesthesia.

Suprapubic method preferred.

1. Because it is more easily and quickly performed.
2. Because the median lobe can often only with difficulty be removed by the perineal route.
3. Calculi may be easily overlooked in the perineal operation.

Care of the wound:

1. Bladder completely sutured (danger of post-operative hemorrhage almost nil).

2. Tamponade of cavity left by removal of gland. Catheter in urethra (usual method).

3. Drainage from above and counter opening (only in cases of severe infection).

Fact that incontinence does not result post-operationem is ascribed, by Schleisinger, to the vicarious assumption of this function by the sphincter externus.

Voelcker (Heidelberg) reports the experiences at the surgical clinic at Heidelberg from 32 cases of perineal prostatectomy during the past six years. He generally accepts lumbar anesthesia as appearing to be less dangerous. The results are as follows: three patients died directly after the operation.

Two of the patients died after their discharge from the hospital.

In five cases the patients were left with moderate complaints, two suffered from perineal fistulæ. Concerning the technic of the operation may be mentioned the fact that the smaller the incision in the pars memb. urethrae, the less is the liability to fistula formation. It is better if one opens the urethra only in the pars prostatica. Two patients were left with a permanent weakness of the sphincter, although this condition was present, to be sure, before the operation; one patient suffered from chronic cystitis.

On the other hand, they have attained satisfactory permanent results in 21 (65 per cent.) perineal prostatectomies.

Their experiences concerning the suprapubic operation are fewer, since they have used this method in only 7 cases. The operation from above is undoubtedly more quickly performed, completed in many cases, in fact, with remarkable rapidity. Good drainage through the bladder wound above as well as through the urethra is important during the after-treatment. The perineal operation, though technically more difficult, is anatomically more correct, and, all things being equal, seems to be less dangerous if performed well.

Gobell (Kiel) reports the results which have been obtained with prostatectomy at the surgical clinic of Prof. Helferich. The hypertrophied gland was removed six times by the perineal and fourteen times by the suprapubic method.

Only one patient died immediately after the operation, a case operated suprapubically. The suprapubic prostatectomy according to the method of McGill-Freyer is preferred, as being a procedure which the patients bear, for the most part, well, if used in combination with the Bier method of spinal anesthesia. Fistulæ resulting from the perineal method remain open much longer than after the suprapubic operation. In two instances it was necessary to close perineal fistulæ by means of plastic operation. Subsequent treatment after the suprapubic operation must be very painstaking. Frequent bladder irrigations through the catheter and drains introduced through the wound in the bladder. It is to be recommended during these bladder irrigations, to massage, every now and then, from the rectum, the space left by the removal of the prostate gland. Also for the patients to sit up early and take deep breathing exercises.

Prostatectomy was performed three times on account of malignant tumors. Exitus in all cases from pyelonephritis.

Reerink (Freiburg). In many cases it is sufficient to open the urethra and remove only small portions of the prostate. The urethra does not only have to be opened but must be separated as much as possible in the membranous portion. The patients can get up soon after these procedures.

P. Rosenstein (Berlin) reports a perineal prostatectomy with favorable results in a 76 year old apoplectic (operation under lumbar anesthesia, 0.075 Tropacocain), a case which seems to him worthy of note on account of a complication with calculi. Retention of urine developed three weeks after the operation, caused by the formation throughout the entire extent of the urethra of a column of calculous material (descended from the kidneys), which had to be removed with the forceps. The perineal scar withstood well the enormous distension of the bladder due to this urinary retention. Subsequent course normal.

Rydygier (Lemberg) recommends early operation before catheterization fails. Suprapubic operation preferred in enlargement of the median lobe, otherwise perineal method. R. performs the intracapsular prostatectomy leaving attached

to the urethra two strips of the gland about 1 cm. thick. The urethra itself is not opened and all the rest of the prostate is removed. The technic is, to be sure, more difficult, but, if the operation succeeds, it is much less dangerous. R. demonstrates his method by means of photographs. Perineal incision in the medium line (only exceptionally according to the method of Zuckerkandel). One then bores in with the finger in an anterior direction along side of the *M. elevator ani*, isolates the *M. recto-urethralis* and divides the same. The posterior surface of the prostate is thus exposed. The capsule is now incised on one side, the prostate separated by means of the finger and rotated until one can reach the portions of the gland lying in front of the urethra. The prostate is finally excised smoothly along the urethra and it is possible in many cases to operate without injury to the same. Incontinence of urine and fistulæ cannot develop under these conditions. Hemorrhage is less in the perineal method.

De Quervain (Chaux-de-fonds) considers the suprapubic prostatectomy as the less dangerous, based upon the results of 12 cases. The hemorrhage is generally slight. Only two fatal cases in the twelve. It is important to irrigate the permanent catheter after a few hours with sterile saline solution. All healed cases can urinate spontaneously and also retain the urine.

Rumpel (Berlin) reports the results at von Bergmann's clinic. Preliminary cystoscopy is important to determine the mode of operation. Many prostates, which surround the urethra in the form of a solid wall, cannot possibly be operated upon according to the suprapubic method. Author warns against filling the bladder with air on account of the danger of embolism. In the after-treatment he uses the double drainage. Bladder irrigations to be given at least five or six times daily. The fistulæ close quickly. Psychic disturbances after prostatectomy are not rare, severe melancholia developing in numerous cases. Author had two cases of suicide.

Freudenberg (Berlin) presents two preparations from cases of suprapubic prostatectomy. In both cases he had performed complete enucleation of the gland. In one of

these cases it seemed by rectal examination as though gland tissue had developed again, and there had taken place a prostate regeneration. This regeneration generally proceeds from the capsule. These patients retained their potency, although a preliminary vasectomy had been performed. F. had one death in seven prostatectomies. As a general rule the urethra may be disregarded, which simplifies the wound conditions and makes the performance of the operation easier and quicker. Author does not recommend elevated-trunk position.

Preindel (Troppan) reports two cases, in one of which there was present a ball-like occlusion of the urethra due to one of the lateral lobes. In both of these cases the *potentia coeundi* was retained. P. lost one man from urinary retention at the end of a year after a successful Bottini operation.

Israel (Berlin) thinks the indications for prostatectomy should be as narrow as possible. In a large material he had performed the operation only ninety-one times. The fact that the patient is compelled to use the catheter, is not considered an indication. On the other hand he does not consider a flabby inactive bladder as a contraindication. He had only unfavorable results after castration. Suprapubic section is to be recommended on account of the ease of performance and the impossibility of injury to neighboring organs. These injuries after the perineal operation are sometimes very great, and author considers that every prostate can be removed through the suprapubic route. One can generally operate through a small incision and must depend rather upon the sense of feeling than upon the sight. One need enlarge the incision only if there is danger of tearing the bladder, as when large prostatic tumors are to be removed. The presence of much adipose tissue does not contraindicate the *sectio alta*, rather the contrary. There is nothing to prevent the addition of a transverse incision to the original one if necessary. The prostatic cavity should always be kept tamponed to prevent the possibility of late secondary hemorrhage, which can never be foreseen.

Payr (Graz) had operated in two cases under local anesthesia. Fifteen minutes before the operation, he injected

50 c.c. of a 1 per cent. eucaine solution into the bladder and then operated under Schleich anesthesia. The enucleation is made easier by infiltrating the deeper tissues with the Schleich solution. He had never seen any bad results from filling the bladder with air.

Schatheis (Wildungen) had performed the suprapubic operation in nine cases. Among these were two deaths on the seventh day post-operationem. There was present here a prostata circumvallata about the urethra. Another case died on the 21st day. In two cases, the result was nil, while in another there was left behind an abdominal fistula. S. does not hesitate to enucleate the gland in toto. The apparently flabby bladder is no contraindication to the operation. One should not forget the possible occurrence of impotency. Referring to a case in which the ureters united in the hypertrophied prostate S. lays weight upon the importance of making visible the ureters before the enucleation and to this end recommends the previous subcutaneous injection of either methylene blue or indigo-carmin.

Helferich (Kiel) is an advocate of the suprapubic route. The difficult cases are those where hard tumors are present. He recommends that the operator pass his own finger into the rectum in order to press the gland forward, rather than leave this to an assistant. He had operated in a similar method as Wallstein with partial resection of the symphysis.

Th. Rovsing (Copenhagen) says that his views concerning prostatectomy for hypertrophied prostate are entirely different from those surgeons who treat all cases of prostatic hypertrophy, or at least those complicated with chronic urinary retention (Kummel), by means of the prostatectomia totalis. He prefers to treat these elderly patients in a much more conservative manner, and it is only when he is absolutely compelled to, that he suggests to these generally very weakened old men such a dangerous operation as a prostatectomy.

Among his one hundred and fifty operations for prostatic hypertrophy, are about 90 vasectomies without a death, and with 60 per cent. cures. He agrees with Helferich, that

the vasectomy is a most excellent operation if it is performed early and in suitable cases (that is to say, cases of diffuse soft hypertrophy). There was also not a death among 50 suprapubic cystotomies. In only ten cases has he undertaken a partial and in six cases a complete prostatectomy, being compelled to on account of suspected malignancy, threatening hemorrhages, or a form and size of the intravesical prostatic tumor which made the application of a Pezzer catheter impossible.

Prostatic hypertrophy is in itself a perfectly benign disease, and as a matter of fact in only 16 per cent. of the cases, where a urinary retention is the result, can it be considered a disease, demanding operative interference, and the treatment should have as its object the removal of the urinary retention and its consequent dangers. If this end may be attained in the great majority of cases by such relatively harmless methods as vasectomy or cystotomy, then he considers the dangerous and indeed often unsuccessful prostatectomy to be both illogical and unjustifiable, and he would also like to ask why we should remove such an important organ as though it were a malignant tumor, when the real indication is only to provide exit for the urine.

The results of prostatectomy which have today been brought out, have confirmed him more than ever in the opinion that his standpoint is correct. For, firstly, it has been shown that the operation is very dangerous to life, all of the statistics showing an immediate post-operation mortality of over 10 per cent.—some over 20 per cent. and even up to 30 per cent.

He should like to win, if possible, all surgeons to the following compromise: in complete urinary retention to limit one's self in all cases to suprapubic cystotomy, with no anesthetic; this operation is entirely without danger and relieves for the time being the urinary retention and all its consequent dangers.

A GOOD WORKING PLAN FOR THE TREATMENT OF CHRONIC GONORRHEA.

By E. REISSMAN, M. D., Newark, N. J.

SINCE the discovery of the gonococcus by Neisser in 1879 the treatment of gonorrhea, acute and chronic, has been the same in principle, but from time to time it has changed in technic and medication. The object pursued is, in the acute stage, the destruction of the diplococcus and the rehabilitation of the damaged urethra, and if the condition, either through inefficient treatment or neglect, has become chronic it is necessary to eradicate the sluggish process by stimulating treatment. All in all the process of inflammatory diseases and their treatment is nearly alike in human economy.

It is my desire to write merely of the chronic form of gonorrhea, and suggest a routine method of treatment which has proven itself simple, effective, and as reliable as can be expected in cases of this kind. The condition which confronts us is a localized inflammation with an extensive surrounding area of congestion and catarrhal discharge in either the bulbous, membranous or prostatic portion of the urethra. Chronic gonorrhea confined to the anterior urethra is generally dependent upon a stricture in the canal, and lends itself readily to treatment by dilatation and irrigation. If, however, we find that the affection is located in the prostatic urethra, as evidenced by an inflammation more deeply seated and more persistent, with a discharge from both the anterior and posterior portions of the urethra, the cure becomes more difficult and of course less rapid.

For the purpose of convenience and simplicity I follow a routine method of examination and treatment which approaches nearest to a system. In order to be thoroughly posted as to the origin, duration, and location of the disease I have always found it expedient to go carefully into the history of the patient and then proceed to verify the statements

as far as possible by a minute examination. I will herewith describe in detail the course pursued by me in every case of chronic gonorrhea coming under my observation.

HISTORY OF THE PATIENT.—This is absolutely essential; from it we glean the origin and course of the acute infection, the nature of the symptoms, whether the discharge is only the usual morning drop, with agglutination of the meatus, or if it is constant, watery or muco-purulent, whether there is a sense of weight in the prostatic region, a forked stream in urination, whether micturition is painful and frequent or not, or whether there is any pain directly or indirectly relating to the genitals.

EXAMINATION OF THE PATIENT.—The patient is ordered to arrange his clothing so that his body is exposed from the umbilicus to midway between the knees and hips; this gives him the opportunity to hold the shirt up with one hand and the trousers and underclothing with the other. He stands erect before the seated physician who then proceeds to examine, first the scrotum, to ascertain the condition of the epididymis, whether it is enlarged, nodular or painful, and to what extent. He then examines the penis, first noting the meatus, observing its calibre and condition. The penis is then stripped by holding the glans between index finger and thumb of left hand, running the right index finger along the urethral surface from the farthest posterior point forward; this will disclose any expressible discharge and perhaps a painful area. A slide should be prepared and microscopically examined.

TEST OF URINE.—The patient is ordered to urinate in three large test tubes. The first and second tubes usually appear cloudy, with long and short floating filaments or shreds, the cloudiness being more apparent if the chronic condition is comparatively recent. The third portion is clear unless there is an accompanying cystitis. Urinalysis and microscopical examination of the urine will, of course, assist in the diagnosis.

EXAMINATION OF THE PROSTATE.—In the presence of symptoms of prostatic involvement invariably concomitant with chronic gonorrhea and indicated by similar symptoms

as the primary affection, including deep perineal pain, it is necessary to examine that organ. The patient is placed on the operating table; thighs flexed, feet resting upon the table, legs separated, gluteal region resting upon his fists. By rectal examination it will be easily elicited to what extent the prostate is involved. This is a painful procedure and must be delicately and carefully performed. The prostate will be found hypersensitive and enlarged.

TREATMENT.—Having confirmed the diagnosis of chronic gonorrhea and its extent we now plan a course of treatment which will give the best results with the least chances of failure. Right here I wish to say that it is not my desire to dilate upon the advantages and disadvantages of the various methods now in vogue, but I merely want to describe a treatment used by me with success and give it for what it is worth. I separate my plan of treatment into four divisions, viz., sounding, irrigation, instillation, and prostatic massage.

SOUNDING.—I preferably begin with this procedure in order to ascertain the calibre of the urethra and the possible presence of a stricture in any portion of the canal. This is repeated every third day in order to empty the inflamed follicles of their contents and to allow the medicinal solution to reach the deepest recesses of the mucous membrane. To ascertain the largest size sound the urethral calibre will take it may be necessary to try two sounds. This procedure has been frequently followed by shock, particularly in sensitive and neurasthenic persons, and must be gently and nearly painlessly performed in order to avoid unpleasant and disastrous consequences. The steel sound, sterile of course, must be rubbed with a sterile towel in order to become warm by friction. It is then inserted into the urethra and on toward the bladder, and left there for 5 to 20 minutes or more.

IRRIGATION.—This is done daily until improvement is manifested, then every other day gradually discontinued. At first I use a 1:1000 solution of protargol in water at about 80° to 90° F., administered by the Valentine irrigator; this solution is increased in strength, as tolerance is estab-

lished, until improvement takes place, when it is again decreased considerably. The following is a table of the solution in the various strengths employed by me^t and usually adhered to, with minor variations dependent upon idiosyncrasies and tolerance of the patients, which must be observed as we go on:

- 1.1000 for the first 3 days;
- 1.750 for the next 3 days;
- 1.600 for the next 3 days;
- 1.500 every day after for 2 or 3 weeks, or until improvement takes place.

Beginning with 15 grains to the quart of water, this calculation shows an increase of 5 grains to the quart, until 1.500 is reached, and if after employing the latter strength for some time the catarrhal condition has subsided and the urine shows a decrease or absence of clap shreds the solution is gradually decreased in the same ratio until discontinued. The patient is instructed to urinate and then to seat himself on a hard wood seat chair with a back, his buttocks resting on the outer edge of the chair, his back reclining against the chair back; between his thighs supported by the hands he holds a 12-inch basin which rests against the space between the penis and scrotum. I now grasp the penis in the left hand, the thumb and index finger holding the glass, thus controlling the meatus, while the remaining three fingers rest upon the urethral surface of the penis, controlling the force and distance of the flowing solution. In the right hand the irrigator nozzle is so held as to be in a straight line with the urethra; any deviation from that prevents a straight and steady flow and causes pain. The cut-off of the nozzle must be under immediate control of the hand. The external surface of the glans and the meatus are now washed off, the nozzle inserted, the anterior urethra irrigated, and when this is thoroughly washed out, the balance of the solution is allowed to flow into the bladder. With a little experience it will be easy to overcome any resistance of the patient.

It will be readily apparent that the irrigation of the anterior urethra will prevent the carrying of any infection posteriorly. After irrigation the patient empties his bladder.

INSTILLATION.—The effect of instillation is undoubtedly the substitution of an acute urethral inflammation for one which has become chronic. As soon as it is noticed that the general catarrh has subsided and the inflammation has become circumscribed I resort to instillation with the Ultzman instillator. Naturally for this purpose the solution is much stronger, and the one usually employed is a 10 to 20 per cent. solution applied every other day.

PROSTATIC MASSAGE.—It must be remembered that many chronic posterior gonorrheas cannot be cured by antiseptics or astringents alone. In such cases the source of the discharge is beyond the reach of medication, because it is located in the ducts of the prostatic gland. Where this condition prevails prostatic massage carefully performed is the only treatment which will empty the ducts and seminal vesicles. This procedure being a painful one, it is but meet that I mention right here the dangers of injuring the gland by either too vigorous or too frequent massage. Once every third day has been found sufficient to produce the desired result. Ill judgment in regard to this point may be the source of very unpleasant consequences. The liability of causing infiltration and induration of the prostate and thereby greatly aggravating a condition which is already serious, cannot be overestimated and must be seriously considered.

Aside from the proper diet and hygienic regulations, which are of material aid and must include abstinence from alcoholic drinks and highly seasoned foods with proper elimination of effete matter and the avoidance of sexual excitement, drugs should be given by mouth to produce an antiseptic and alkaline condition of the urine. This plan of treatment is one which is of value in so far as it is painless, rapid, and without trouble or the publicity which usually accompanies home treatment, while to the physician it is satisfying and rewarding in the knowledge that he has made an honest effort to cure his patient.

THE SMEGMA BACILLUS AND URINARY TUBERCULOSIS.

THE Ziehl-Neelsen method of staining tubercle bacilli—warm carbol fuchsin followed by decolorization of all the structures except the bacilli by means of strong sulphuric acid—is well known, and the occurrence of bacilli stained red by this method is the clinching point in the diagnosis of many tuberculous lesions.

It must be remembered, however, that notwithstanding the drastic treatment with sulphuric acid, there are two other micro-organisms besides the tubercle bacillus which retain the red stain by the Ziehl-Neelsen method. These other two bacteria are: the bacillus of leprosy and the smegma bacillus. Fortunately the bacillus of leprosy is a negligible quantity as regards differential diagnosis. The same cannot be said, however, of the smegma bacillus. It is particularly in regard to the bacteriological examination of the centrifugalized deposits from urines that the difficulty arises. The smegma bacillus may be present in the deposit, staining red in the same way that tubercle bacilli do, and the patient may very easily be thought to have a tuberculous kidney or tuberculous bladder, unless steps are taken to avoid the fallacy.

There are two main ways of getting over the difficulty, which may be summarized as: (1) The method of collecting the urine, (2) the modification in the staining method.

The smegma bacilli are essentially surface bacteria—that is to say, they are not found at any distance below the surface, either in tissues such as the skin, or in canals such as the urethra. They are found in chief abundance beneath the fatty secretions. Hence they may abound beneath the prepuce and on the glans penis. They also abound in the folds of the female genitals, particularly the labia majora et minora. In the male they are also to be found with regularity in the urethral meatus, and upon the surfaces of the thighs with which the penis comes in contact. They have also been found, however, in the ear, particularly when there has been long-standing accumulation of wax; in the sebaceous

secretion all over the body; on the tongue and teeth; and in all the natural openings. Whenever there is an excessive secretion from a skin surface, the smegma bacilli may multiply locally, and an erroneous diagnosis of tuberculide of the skin might result. They abound in the secretion of ulcerated chancres, upon syphilitic condylomata, and upon similar but non-syphilitic surfaces.

Although so widespread on the surface of the body, smegma bacilli have been shown to be constantly absent from the bladder and posterior urethra. It seems clear, therefore, that a given specimen of urine can only contain those smegma bacilli which have been present in the external meatus urinarius, or upon the glans and prepuce in the male, or upon the labia in the female.

Knowing as we do that the smegma bacilli collect most under the prepuce, or upon the labia, it is clear that these must be cleansed by sponging as far as possible, and then held as much out of the way of the stream of urine when the latter is passed. The meatus urinarius should be cleaned in a similar way. Indeed, though it is not essential to pass a catheter, the same precautions should be taken as would be if a catheter were to be passed. Two receptacles for the urine should be at hand. The first small quantity of urine that is passed should be discarded. The rest of the urine is collected in the second receptacle and kept for examination. It is as free from smegma bacilli as may be. Even if a catheter specimen is obtained, the first urine that comes through the catheter should be discarded.

It might be thought that, even if the staining reactions were similar, the microscopical characters of the smegma bacillus would serve to distinguish it from the tubercle bacillus. Few of us, however, can rely much upon such small points as the following: That the smegma bacillus has a slightly more regular outline than has the tubercle bacillus, has more angular extremities, occurs singly or in groups of very few, and hardly ever in clumps of many, is more frail, and does not tend to appear beaded. Given a bright red bacillus of approximately the same size as the tubercle bacillus, and it must always be very difficult to be sure of dis-

tinguishing which it is from its morphological characters. It remains, therefore, to devise some method of staining the film of urinary deposit in such a way that the tubercle bacilli remain red whilst the smegma bacilli becomes decolorized, or, at least, no longer bright red. More than a score of such methods have been devised and used, but not one of them is perfect. One of the best is the following:

The films, after they have been overstained with carbol fuchsim, then decolorized with strong sulphuric acid, and after the latter has been removed, are immersed for five minutes in a solution containing 95 per cent. of alcohol and 5 per cent. of strong hydrochloric acid. The acid alcohol should then be removed with successive changes of ordinary alcohol, after which the usual counterstaining with carbol methylene blue may be proceeded with. The tubercle bacilli in the finished film will be bright red as before, while the smegma bacilli will be either partly or wholly decolorized. If completely decolorized, they will naturally not be seen at all. If only partly decolorized, they will be of a faint and dull red color; so that the chances are that any bright red bacillus in the blue field will be a tubercle bacillus.

The smegma bacillus is a very real source of error in cases where tubercle bacilli are being sought in the urine; this applies equally whether the patient is a man or a woman. Morphologically the smegma bacillus and the tubercle bacillus are only distinguishable by those who see both frequently. The error may be reduced to a minimum if precautions are taken in regard to how the urine is collected. The error may be still further reduced if, in carrying out the Ziehl-Neelsen staining method in the laboratory, an additional step be introduced—that of immersing the film in 5 per cent. hydrochloric acid in absolute alcohol.

JUSTUS' TEST FOR SYPHILIS.

JUSTUS' test for syphilis may not be known to all, but as it has the American army to recommend it, and as it has been employed in some hospitals in this country, it is worth knowing both what it is and what value it has. The test depends

upon the changes undergone by the hemoglobin of the blood after mercurial inunction or mercurial injection. Cabot in his book on the blood gives it in these words: "If, in cases in which secondary symptoms have not yet appeared, we test the hemoglobin after giving inunction or subcutaneous injection of mercury, we find that within twenty-four hours a very marked fall in hemoglobin has taken place (10 to 12 per cent.), owing to the action of the mercury on the weakened corpuscles. This sudden fall is followed by a gradual rise, until within a few days the coloring matter is at a point slightly higher than before the mercury was given. In diseases other than syphilis the sudden drop does not occur. After the advent of the secondary symptoms the peculiar reaction of the mercury does not occur." It happens not infrequently that the practitioner would be very glad of a means of determining whether a particular lesion is syphilitic or not, in the early stages, before secondary symptoms appear. Justus' test, if reliable, would be very valuable.

The test has been utilized in a good many cases in the Military Hospital at Curragh Camp, and the results show that it is extremely misleading. Even if one could not exclude syphilis by finding Justus' test negative, it might have been hoped that the occurrence of a positive Justus' test was an indication of syphilis. The test, however, seems to be unreliable both when positive and when negative; that is to say, the patient may give a positive Justus' reaction, and yet develop no indication of syphilis at all; or he may give a negative test and then develop ordinary secondary syphilis a few weeks later. The following are the results obtained at Curragh Camp:

Twenty-two suspected cases of syphilis were tested altogether; of these, nine gave positive Justus' test, and thirteen did not. Of the nine who gave the test, and who therefore ought to have had primary syphilis, only one developed secondaries, the other eight remaining quite well three months later. Of the thirteen who did not give the test, eight developed secondary syphilis, and five remained well, three months later.

In all these cases there was a sore of some kind, so that the net result is that persons with chancroid are even more liable than those with true chancre to give a positive Justus' test, and the test may be negative with either. One batch of patients had the mercury by inunction, the other by injection. It cannot be argued that the mercurial injection or inunction, as the case may be, prevented secondary symptoms appearing in spite of the original sore being a true chancre and not a chancroid; or, at least, even if it is so argued, the result is similar, for nine of the twenty-two cases did develop secondary symptoms, and only in one of these was Justus' test positive. We can only conclude that the reaction is too unreliable to be utilized in general practice.—*The Hospital*.

THE ABORTIVE TREATMENT OF GONORRHEA IN THE FEMALE.

DR. FREDERICK BIERHOFF (*N. Y. Med. Jour.*, Jan. 11) thus outlines the various procedures which he has employed with success in the abortive treatment of gonorrhea in the female.

1. A microscopical examination of the urethral secretion, or scraping, and of the secretion showing at the vulvar orifice.

2. Cleansing of the meatus, and irrigations of the urethra and surroundings with a solution of one-quarter to one-half per cent. solution of protargol. Either the hand syringe or the irrigator may be employed, but no great degree of pressure should be employed. In all about 150 c.c. are used for the urethra and surroundings, after which about 150 c.c. of the fluid are injected, through the urethra, into the bladder, to be later expelled by the patient. In this latter irrigation, the patient is instructed to relax the muscles, as though about to urinate, when the urethra feels distended, whereupon the fluid will be found to flow easily into the bladder.

3. Cleansing of the vulva with 150 c.c. of the solution.

4. A vaginal scraping is now made and examined, the sterilized platinum loop being passed well into the vagina for this purpose.

5. The nozzle of the syringe is gently inserted into

the vagina, the stream of the solution, during this time, passing into the vagina, and the nozzle inserted up to the point where the body of the syringe blocks the outlet. The syringe blocking the outlet to prevent the escape of the injected fluid, the injection is continued until the vagina becomes distended with this solution, which is then allowed to flow out. About 300 c.c. of the solution are used for this vaginal cleansing.

6. A sterilized speculum is inserted into the vagina—preferably of the duckbill type—and the vagina, particularly the fornices and the cervical orifice, cleansed by gently wiping with little cotton pledgets.

7. A specimen of the cervical secretion, or a scraping from the cervical canal, is now made with the sterilized loop, and a microscopical examination thereof made. Should this be found to be free of gonococci, and to contain few or no blood corpuscles whatever, then the vagina is lightly tamponed with several yards of narrow, absorbent gauze strips, saturated in one per cent. protargol solution, and the speculum withdrawn. He employs the tamponade whether the vagina is infected or not. If it be infected, he employs a five per cent. solution. There is then an exfoliation of the superficial epithelial layers, and usually, in from twenty-four to forty-eight hours, the vaginal secretion will be found to be sterile. If the vagina be not infected, its infection is prevented by this tamponade.

8. A soluble urethral bougie of five per cent. protargol in cacao butter, made of a length of an inch and a half, is inserted into the urethra and left therein.

9. While the index finger of the left hand maintains the urethral bougie in place by pressure of the finger against the meatus, a pad of absorbent cotton, saturated with one per cent. protargol solution, is placed over the urethral and vulvar orifices and kept in place with a "T" binder. As the patient has urinated in emptying the bladder of the fluid injected into it, she is now instructed to resist the desire to urinate, if possible, for several hours, so that the drug in the melting bougie may be kept in contact with the urethral mucous membrane for as long a period as possible. The

pad covering the vulva is also kept moist with the one per cent. protargol solution.

10. Rest in bed, if possible, is of advantage in the treatment. Bland diet should be ordered; all intoxicating or carbonated drinks avoided, and all highly spiced articles of food omitted from the dietary. A daily warm sitz bath, in the evening, completes the treatment. The tampon is left in place for twenty-four hours, whereupon it is removed by the physician, and the treatment, as outlined, repeated. Should the patient desire to urinate, the moist pad is simply removed, to be replaced at once thereafter. Under this treatment, within twenty-four to forty-eight hours, if the cure is to prove a success, the urethral secretion must be free of gonococci, as must also the vulvar and vaginal scrapings. After two such applications, if there be no more gonococci present, it is his custom to begin the tests by omitting entirely the urethral irrigation and bougie, and by substituting a vaginal irrigation of bichloride of mercury solution, 1 in 4,000, or a solution of one-half per cent. zinc sulphocarbolate for the irrigation with protargol, and the vaginal tampon is entirely omitted. The warm sitz baths are, however, continued for a few days longer. Should the test of the interruption of treatment be followed by no return of gonococcus bearing secretion, then we proceed to the alcohol test. Further control examinations must be made at intervals, and only when the urethral and cervical scrapings continue free of gonococci, even after the next following menstruation, may we discharge the patient as definitely cured. Should discharge with gonococci reappear during the tests, then we simply continue with the treatment until the patient is cured.

THE INFLUENCE OF VARICOCELE UPON CERTAIN GENITO-URINARY SYMPTOMS. This interesting subject was considered by Paul Hamonic, of Paris, in a recent paper (*Annales des Maladies des organes génito-urinaires*, November 15, 1907). Of the 29 cases of varicocele operated by the author, six showed the presence of chronic urethral discharges, due to the pre-existence of old gonorrheal infections. In five of these patients, the discharge disappeared

as though by magic after the operation. In the sixth case there was a urethral stricture which afterward was dilated. The most rational explanation for this apparently marvelous cure is that venous stasis in the cord, such as occurs in varicocele, has an unfavorable influence upon the urethral lesions. In two old prostatics, with a considerable amount of retention of urine, Hamonic operated for varicocele. Unexpectedly, the prostates in both cases became considerably smaller and the acute attacks of congestion and retention disappeared. In these cases, therefore, the effect was somewhat similar to that obtained by double castration. Of nine cases with impotence, six patients recovered their sexual activity after the operation for varicocele, while the remaining three were too old when the operation was performed and showed no improvement. In four cases, coitus became possible owing to the disappearance of the pain in the scrotum, while in two, the sexual function gradually returned and the spermatozoa reappeared in the semen. The cessation of testicular secretion must be attributed again to the venous stasis produced by the varicocele.

The method of operating for varicocele adopted by Hamonic resembles closely that of Horteloup, but is simpler as it does not involve the use of any clamps, and is safer because the sutures resist any infiltration of the blood that may occur. The patient having been chloroformed, the assistant spreads the scrotum in the form of a fan, the convex border of which corresponds to the raphé. The operator pushes the testicle towards the inguinal ring. He next inserts a series of U-shaped sutures along a curved line, transfixing the scrotum at the level where the resection is to be made. The scrotal tissue beyond this line of sutures is next cut through with the scissors and the cutaneous borders are sutured by means of interrupted sutures. This operation is merely a resection of the scrotum and is used in cases of varicocele in which there is not a great deal of venous dilatation, but a considerable amount of loose scrotal skin. When, however, the varices are very large, this procedure is not sufficient, and a certain portion of the dilated veins must be removed. For this purpose, these veins are drawn out be-

yond the line of sutures before the latter are inserted and the veins are included in the sutures as they are tied. The scissors then cut through the veins, as well as the scrotal skin, and if they bleed much, they are tied separately. When the varicocele is very large, a small incision should be made in addition, in the neighborhood of the inguinal ring, and the largest of the vessels should be tied there.

THE TREATMENT OF HYDROCELE IN CHILDREN.

Monnier (*Revue Pratique de Gyn. Obst. et Pédiatrie*, August 15, 1907) considers the technique of treating hydroceles in children. These may be of three varieties: hydroceles of the tunica vaginalis, encysted hydroceles of the spermatic canal, or cysts of the cord. Hydroceles of the tunica vaginalis are met with chiefly in the newly-born or in young infants. Quite often they are double. The best and simplest treatment consists in the application of gauze pads, soaked in a saturated solution of ammonium chloride, renewed twice or three times daily, for a week or two. The tender skin of the scrotum tolerates these applications well and the patients soon recover. In older children, say two years of age, the hydrocele sometimes assumes an elongated shape and mounts up to the inguinal orifice. Cysts of the cord may also be subdivided into two classes, the small cysts, up to the size of a walnut, and the large cysts, which are much more voluminous. Any practitioner can treat the small cysts by injecting 90 per cent. alcohol into them, after having made sure that there is no persistence of the vagino-peritoneal canal. The left hand holds the cyst and, avoiding the testicle, a hypodermic syringe is plunged into the cavity. The liquid contents escape, and with the needle still in place, from five to twenty drops of alcohol are injected. The puncture is sealed with collodion. The treatment is repeated every eight days, gradually increasing the number of drops, and a complete cure is obtained in three or four weeks. This method is better than evacuation of the cyst with a trocar and cauterization of its internal surface with silver nitrate. The latter method is a little more violent, as it produces a reaction which

requires the child to remain in bed, while with the alcohol treatment the child continues to play as usual.

In larger cysts the best method is to make an incision similar to that required for inguinal hernia, but one centimeter lower. The inguinal orifice, and its pillars, are exposed, the cyst is drawn into the wound and separated from the adherent structures (the testis, the tunica vaginalis, the veins, artery, and vas deferens), the sac is then resected, as high up as possible, together with that portion of the sheath which passes into the inguinal canal, after tying a ligature above and below. The inguinal orifice is then sutured with catgut to prevent possible hernia. The wound is simply closed, leaving a small drain in the inguinal region.

RADIOGRAPHY IN THE DIAGNOSIS OF RENAL CALCULI.

Arcelin, in a communication to the *Société Médicale des Hôpitaux de Lyon*, May 14, 1907, stated that he had obtained very satisfactory results with radiography in the diagnosis of renal calculi. In 14 cases he was able, by means of the radiograph, to detect not only the presence of stones, but their number, their location, and their approximate weight. All these data are of extreme importance. A surgeon who knows that there is only one calculus can avoid looking for other stones during the operation. When the radiograph indicates several stones, he will carefully look for all of them. Arcelin believes that the radiographer should be present at the operation, so as to tell the operator whether all the stones represented upon the photograph have been removed. The weight of the stone can be estimated approximately by experienced radiographers. Thus, in a case reported by the author, the estimated weight was 1.50 gram, while the actual weight was 1.59 gram. An important point is the seat of the calculus. If it appears to be close to the spine, it is probably in the pelvis. If its shadow is far from the spine, it is probably in a calyx—or in the renal cortex. In the first instance, the operator may hesitate between incising the pelvis or opening the kidney. In the second instance, he will at once proceed with nephrotomy. In a case reported by the author, pyelotomy was performed

because the stone appeared to be in the pelvis. The patient made an excellent recovery. With careful technique, very small calculi, less than a gram in weight, can be detected. Radiography should always be performed on both sides, so as to make sure that the opposite kidney is free from stones. It should also include both ureters through their entire extent.

THE CUTANEOUS REACTION WITH TUBERCULIN.

Arloing (*Comptes Rendus de la Société de Biologie*, June 22, 1907) does not believe that the cutaneous reaction with tuberculin, which was described by von Pirket, on May 20, 1907, before the Medical Society of Berlin, will prove to be a useful diagnostic method. Von Pirket claims that if a tuberculous individual be vaccinated by rubbing a few drops of tuberculin into a small area of scarified skin, a local reaction similar to that following vaccination against smallpox, will result. Von Pirket claims that this local reaction is of great diagnostic importance. On June 3, 1907, Professor Vallée, of Alford, communicated to the Academy of Sciences of Paris the results of his experiments with v. Pirket's method in rabbits, horses, and cattle, both healthy and tuberculous, and concluded that the cutaneous reaction with tuberculin is almost completely absent in healthy animals, while it is constantly present in those which had been experimentally infected with tuberculosis. Arloing now presents the results of some control experiments with this reaction in a large number of tuberculous animals. He does not find the reaction to be constant, and, in fact, asserts that a very similar reaction could be obtained by the application upon the scarified surface of a simple mixture of water and glycerine, in the proportion of 50 per cent. of each.

THE OPHTHALMO REACTION WITH TUBERCULIN.

Calmette, proceeding upon the principle established by v. Pirket, introduced a new method of diagnosis for tuberculosis in man, at a meeting of the Paris Academy of Sciences, June 7, 1907 (*Comptes Rendus de l'Académie des*

Sciences, June 7, 1907). He found that the mucosa of the eye can produce a reaction analogous to that of the skin when brought into contact with tuberculin. He therefore instilled under the conjunctiva of tuberculous patients one drop of an aqueous solution of tuberculin of varying strength. The mucosa became swollen and red, and in typical cases there appeared a whitish yellow, fibrinous, mucopurulent exudate. The author attributes a diagnostic value to this reaction and calls it the ophthalmo-reaction with tuberculin.

Letulle (*Comptes Rendus de Société de Biologie*, June 22, 1907) studied the ophthalmo reaction with tuberculin in 66 patients affected with tuberculosis, who were all in the hospital under treatment. The reaction was positive in 63 and negative in 3 cases. (These researches, if confirmed by other investigators, may possibly offer an important method of diagnosis in tuberculous lesions of the skin and of the genito-urinary organs, when doubt exists as to the etiology of the trouble.—ED.)

THE INTERNAL AND LOCAL TREATMENT OF ACUTE GONORRHEA.

By Dr. Paul Asch, Privatdocent at University of Strassburg.

THE author lays stress upon the difficulties of deciding when gonorrhea is cured. He states that the only determining factor besides a microscopic diagnosis lies in a urethroscopic examination.

The cases discussed were treated during the last three years and came from all social strata. Treatment consisted of as much bodily rest as possible, strict diet, and the use of balsams, injections, or Janet irrigations. The balsams employed were Santal Midy, Gonosan, Santal Monal with methylene blue and santyl-knoll. One-third of the patients received only internal medication, a second third also injections with the usual syringe (protargol, albargin, zinc sulphocarbolate and mercury oxycyanite), while the remainder were treated only with Janet irrigations of the anterior urethra. The conclusions are that the best results are obtained with the Janet irrigations, while injection with the

ordinary syringe frequently leads to a posterior urethritis, probably owing to paralysis of the sphincter.

After Santal Midy, 30 per cent. were cured, 40 per cent. showed a posterior urethritis, usually with epididymitis. No complications were seen in the remaining 30 per cent., but improvement was so slight that Janet irrigations were resorted to.

After Gonosan, 10 per cent. were cured, 40 per cent. developed urethritis posterior, prostatitis, or epididymitis, the remaining 50 per cent. showed no improvement after six weeks, so that a cure could only be established by local treatment. After both Santal Midy and Gonosan, the patient complained of eructations, abdominal cramps, and pains in the lumbar region. Santal Monal and Santyl-Knoll were better tolerated and no after-effects appeared. After Santal Monal, there were 200 per cent. cures, 40 per cent. posterior urethritis, partly with prostatitis, 40 per cent. not improved. Cure after Janet irrigation. After Santyl-Knoll, 30 per cent. cures, 10 per cent. posterior urethritis, and 20 per cent. per cent. epididymitis. In the remaining 40 per cent. the discharge had diminished considerably after eight weeks, a cure was affected only, however, with Janet irrigations. The small percentage of cures following the use of balsams alone is ascribed to the short time of action, since the balsams can only influence the mucous membrane during urination.—*Folia Urologica*, 1907, No. 1.

A SIMPLE STAINING METHOD FOR THE GONOCOCCUS.

By J. G. FITZGERALD, M. D., AND E. H. YOUNG, M. D.,
Toronto. From the Laboratory of the Toronto
Asylum.

PRELIMINARY Note.—The method here suggested has been found very useful, and because of its simplicity it must appeal to the busy practitioner, by whom so many laboratory procedures are difficult of performance and require the expenditure of no inconsiderable amount of time.

The gonococcus is stained by any aniline basic dye and

is decolorized by Gram's method. These facts are taken advantage of by the advocates of the common method of staining where Bismarck brown is used to differentiate the gonococcus.

Our method is simply the application of Nissl's soapy methylene blue solution without any counterstain—the solution is made up as follows:

Methylene Blue B. Patent.....	3.75
Venetian Soap	1.75
Distilled Water	1000

The smears, which should be made on slides (and care must be taken to have them *as thin as possible*), are fixed in the air and then stained (without heating) for one minute with Nissl's, washed, blotted and are ready for examination with the oil-immersion lens.

The objections to the method are that there is no counterstain, and other pyogenic cocci may be mistaken for the gonococcus. We feel that if the smears are thin so that individual pus cells can be carefully studied this objection will lose weight. The other objection, that any ordinary methylene blue solution would do as well, we have not found to be the case.

For many years Nissl's stain has been a popular differential cell stain in the preparation of tissue of the central nervous system, and although it is unreliable at times for permanent preparations, its value in the study of sections that are examined at once is of undoubted value, and we have found it is of equal value as a simple laboratory method for the study of gonococcus.

THE TREATMENT OF GONORRHEA WITH ARHOVIN.

Dr. M. WEINBERG, Vienna (*Wiener medicinische Presse*, No. 44, 1907.

DR. W.'S observations demonstrate the fact that arhovin is effective and, moreover, never causes irritation.

Weinberg also finds arhovin possessed of most remark-

able analgesic properties—a fact which he ascribes to the promptness with which it is absorbed. He noted that even severe pain ceased within two days after its administration, and often on the same day. The astonishing regularity of this effect can only be explained on the ground that arhovin, which is rapidly eliminated, anesthetizes the genito-urinary organs and arrests the inflammatory processes.

W. places the dose somewhat above the average, giving in severe cases ten of the capsules at 4 grains daily. He attributes his excellent results partly to this increased dosage, from which he never saw untoward effects.

PYONEPHROSIS DUE TO TYPHOID BACILLI.

TYPHOIDAL suppuration in the kidney is distinctly rare, and we give the following case not because the lesion itself is common, but because the patient is a very good example of the long persistence of typhoid bacilli in pure culture for years after the enteric fever. A number of these cases have been recorded by Dr. Hugh H. Young and Dr. Louis C. Lehr in the Johns Hopkins Hospital Reports. The patient was a male who complained of bladder trouble. He had had typhoid fever in August, 1893, with one relapse. The fever ran its usual course, and it was of ordinary severity. The urine at the time was not noticed to be abnormal, and the patient was discharged in apparently good health. He was not seen again until July, 1897, when he returned complaining of a urethral discharge of two weeks' duration, with dysuria and increased frequency of micturition, apparently gonorrheal. The urethritis cleared up in a few weeks, but for the next three years, though no other symptoms were present, he frequently saw "corruption" in his urine, which was always milky in appearance. He continued his usual work. He stated that although the gonorrheal urethritis was the cause of his seeking advice in 1897, his urine had been milky ever since his convalescence from typhoid fever in 1893.

In 1898 the urine was very cloudy, with a dirty grey deposit of pus on standing. Bacteriologic examination of a catheter specimen was made with extreme care; the result

was controlled by the serum test, and it became clear that the urine abounded with typhoid bacilli in pure culture, no other organisms being present. The condition was now diagnosed as chronic cystitis due to bacillus typhosus; the kidneys did not appear to be diseased. There was little pain, and no haematuria. It is worthy of note that the patient's blood serum still gave a positive Widal's reaction in dilutions up to 1 in 500. This is interesting because, as Dr. Herbert French has shown in the "Guy's Hospital Reports," 1907, the Widal's test rapidly becomes negative again after typhoid fever when there have been no complications. The patient now began to be more ill, suffering from malaise, nausea, chronic constipation, and pain in the loins, though he was not confined to bed. He was treated with urotropin, vesical lavage, and so forth, and improved for a time, but always relapsed; until, in September 1903, he had lost twenty-three pounds' weight in three weeks, had severe pains in the loins, much pyuria, and was too weak to work. He became uremic, and died ten years later.

AUTOPSY.

The only organs that were materially affected were the kidneys, ureters, and bladder. There were no ulcers in the intestine. The kidneys were very large, and contained numerous chronic abscesses full of thick creamy pus; there were concretions in the pyogenic membranes in many places. There was great diminution in the renal tissue proper; the pelves were dilated and inflamed, the ureters were much dilated, and the bladder was contracted, thick-walled, and in a state of chronic cystitis. Cultivations from the renal pus gave pure cultures of typhoid bacilli, confirmed by Widal's serum test.—*Hospital*.

TREATMENT OF NEURALGIAS OF THE GENITO-URINARY TRACT BY MEANS OF HIGH-FREQUENCY CURRENTS. D. Courtade, of Paris, (*Annales des Maladies des organes génito-urinaires*, 1907, No. 22) found high frequency currents excellent in the treatment of neuralgias of the genito-urinary apparatus, particularly of neuralgias of the bladder, urethra and testicles. The high-frequency currents act in

the first place upon the general system, and in the second place, they exercise a special local effect. They act directly upon the congestive phenomena and relieve pain in virtue of their analgesic properties. These currents also relieve spasm in the urethra and the cut off muscle. In order to succeed with this treatment, the proper electrodes should be used. Of these, the best are those of Domner or of Oudin.

THE BACTERIOLOGY OF URINARY INFECTION. Jungano, of Naples, in a recent study on this subject, the results of which he reported to the French Urological Association (11th Session, 1907), summarizes the bacteriology of the urinary tract in the following manner:

1. *Urethra*: (a) *Normal Urethra*.—In ten normal subjects, the number of microbes in the urethra was rather small and both aerobes and anaerobes were found to be present simultaneously, although the anaerobes predominated. Among the aerobes, the first place must be accorded to the staphylococcus albus. Among the anaerobes, the bacillus perfringens and other less well known germs are encountered. These germs occur only in the anterior urethra. The glandular secretion of the posterior urethra is normally sterile.

(b). *Acute Urethritis*: Even in cases of acute gonorrheal urethritis, the aerobes and anaerobes that are found in the normal urethra can be discovered on culture.

(c). *Chronic Urethritis*: In the pus of the so-called superficial forms of urethritis, there are often anaerobic bacteria. The same varieties are found in the so-called aseptic urethritides after massage of the prostate. This variety of urethritis should not be any longer described as a separate disease. (d). In perineal suppurations, such as diffuse or circumscribed abscesses, both aerobes and anaerobes are met with, the bacillus perfringens being isolated in four out of five cases. This bacillus seems to play a prominent rôle in perineal suppurations.

2. In the acute infections of the bladder aerobic germs only occur. In the chronic infections of that organ, anaerobic species are found also. The chronic infections are usually due to a number of germs acting simultaneously. The

infections of the bladder which have been examined by the author were all of urethral origin.

3. *Kidneys*: When a renal infection is of vascular origin, it is usually due to an aerobic germ. If on the other hand, it is of vesical origin, it is due to anaerobic species.

THE TECHNIQUE OF NEPHROTOMY. A. P. Krymoff (*Chirúrgia*, November, 1907, page 487) reviews the literature and statistics of nephrotomy, with special reference to the functional integrity of the kidney after the operation. It seems to be quite well established that the incision in the kidney heals by cicatrization and involves the destruction of a portion of the parenchyma of the organ. According to Langemack, infarcts are formed in the kidney after nephrotomy, which afterwards become organized and cicatrize. The author found, however, that such infarcts are formed only in a small percentage of nephrotomies. In one case, he demonstrated microscopically that the infarct was caused by an infected suture. The author points out that the technique of nephrotomy and especially the material used for suturing have much to do with the subsequent functional condition of the kidney. In his own experimental work, he used an incision along the convex border, plunging a double-edged knife into the convexity and cutting in both directions along the vertical plane. He advises the use of such a double-edged knife because he believes that such an instrument enables us to cut more accurately in the plane of cleavage of the kidney. As regards the sutures, most surgeons prefer catgut, and a part of the experimental work conducted by the author, consisted in the study of the microscopical changes produced in the kidney along the line of sutures after nephrotomy. He found that there are always extensive cicatricial changes along the sutures, and for this reason tried to avoid the use of sutures by employing clamps, which he applied to the convexity of the kidney, thus keeping the borders of the incision together. In the cases in which the clamps were used, urine was secreted more promptly from the operated kidneys, the pathological changes in the urine were less marked, and after injecting phloridzin, a larger amount of sugar was excreted. In other words, the kidney

recovered its functional activity more promptly when no sutures were used, and when the clamp was applied, after merely stitching the fibrous capsule, than after the ordinary operation, involving the penetration of silk or catgut into the parenchyma. Silk thread was worse than catgut because it remained in the organ and gave rise to a more abundant formation of connective tissue.

A CASE OF INTRAPERITONEAL RUPTURE OF THE BLADDER. A. A. Hardin (*Chirúrgia*, November, 1907) reports a rare case of rupture of the bladder. The patient was a young man, aged 28 years, who was brought to the hospital almost unconscious. On the previous evening, he drank six bottles of beer, went to bed without passing water. He slept in a hay loft, and during the night accidentally slipped and fell to the ground, a distance of about three yards, striking his abdomen. He began to pass bloody urine and to suffer from tenesmus and frequency of urination, which afterwards was followed by a severe pain in the abdomen. On admission his pulse was scarcely perceptible, his abdomen somewhat distended and painful, especially over the bladder. There was tympanites over the median line and a dull sound in the flanks. A catheter removed 250 c.c. of bloody urine. The diagnosis was traumatic rupture of the bladder and an operation was decided upon. The peritoneal cavity contained bloody fluid in clots. At the bottom of the bladder was an irregular tear, 13 cm. in length. The peritoneal cavity was cleaned and a double row of sutures was applied to the wound. A permanent catheter was introduced. The patient died soon after the operation, in spite of stimulation, etc. The tear in the bladder, 13 cm. in length, was one of the longest on record.

INJURY TO THE URETHRA: COMPLETE SEPARATION FROM THE BLADDER AND PROSTATIC PORTION. M. M. Krumholz (*Chirúrgia*, November, 1907, page 537) reports a remarkable case of traumatism of the urethra, in which the injury was not connected with a fracture of the pelvis. The patient was a boy aged 9, who had sustained a crushing injury of the genitals. Pain in the abdomen and bloody urine were the immediate symptoms. On examination, he showed

ecchymoses in the region of the pubic bones, and on introducing a catheter it was found that the latter did not enter the bladder, but seemed to penetrate into the prevesical space. A superpubic incision was made, and a catheter was introduced into the urethra, the catheter being found in front of the bladder. The bladder had not been injured, but the urethra had been torn away below the bladder. The vesical opening could not be found, and the bladder was therefore opened and a catheter introduced from within. It was impossible to suture the ends of the urethra, owing to the position of the injury. A permanent catheter was left in place, however. This secured sufficient drainage and the patient made a good recovery, the ends of the urethra apparently healing without sutures.

NON-TUBERCULOUS ABSCESS OF THE PROSTATE. J. Oraison, of Bordeaux, (*Revue Pratique des Maladies des organes génito-urinaires*, 1907, No. 23) in an analysis of this subject points out that two conditions are essential to the formation of suppurative foci in the prostate. The first, is the presence of circulatory disturbances which are so frequent in the prostatic region owing to the rich venous supply of the organ. The second is the entrance of germs which almost always come from the urethra. Of the latter, the staphylococcus is the most frequent, the gonococcus, which was found in 69 out of 192 cases, is next in frequency. The streptococcus and the colon bacillus are also sometimes found; other germs are rarely seen in prostatic abscesses, except the pneumococcus, which was isolated in one case in pure cultures by Guillon. In addition to the germs which come from the urethra, the infectious agent in prostatic abscess may also be derived from the intestine, or even from a general infection of the system. In 27 cases, the author found prostatic abscesses as the result of influenza, pyaemia, mastoiditis and furunculosis. The process frequently involves the periprostatic tissue. This takes place usually following the rupture of the pus through a weak part of the capsule into the periprostatic cellular tissue. Yet periprostatitis may also occur without such a rupture by a contiguous infection. In some instances, the periprostatitis is the primary lesion.

The periprostatic tissue may also be infected through the venous channels surrounding the prostate, and occasionally, the infection has been known to spread through the lymphatics of the prostate.

The preventive treatment of prostatic abscess is important. It consists in avoiding the spread of the urethral infection backwards into the prostate. If the prostate has already become involved, both the prostatitis and the urethritis should be treated thoroughly by hot, rectal douches, suppositories, massage, irrigations or instillations. Strictures should be dilated, and men with a tendency to prostatic hypertrophy should be carefully watched lest they develop prostatic infection. When the abscess has already developed, it is best to allow the pus to escape as quickly as possible, unless the abscess bursts spontaneously and drains well. If the abscess does not burst, or if it does not drain well, operation is indicated, provided there is no other contraindication. Three ways are open to the surgeon who desires to attack a prostatic abscess: The urethra, the rectum and the perineum. Through the urethra, the abscess cannot always be opened. Formerly, this was done by introducing a special conical sound into the prostatic urethra and forcing the prostate against the sound through the rectum. This was a blind and dangerous procedure. On the other hand, if rupture takes place spontaneously into the urethra, we can aid the evacuation of the abscess by massage, combined with irrigations. This treatment can be applied by any practitioner.

The rectal route is probably used more than any other and gives very satisfactory results. The abscess often points toward the rectum and can be very easily incised without much surgical skill. It usually heals quickly and does not give rise to permanent fistulæ. Still, the rectal route has its disadvantages. The chief of these is that the fecal material is apt to infect the wound. In practice, however, this is not a serious objection. The incision should be made by means of a speculum and the abscess should be packed, if necessary, to arrest hemorrhage, to prevent the entrance of fecal material, and to drain. Prostatic abscesses opened through the rectum usually drain very well. The rectal

method is applicable chiefly in those cases in which the abscess is made out early, in which the abscess points toward the rectum, and in which there are no serious complications. It is applicable in other words in the great majority of cases of prostatic abscess. On the other hand, in cases in which the abscess points toward the perineum, or in which it has burst into the urethra but is not draining well through that opening, and in cases complicated and serious in character, which require great care after operation, it is best to open the abscess through the perineum. For this purpose, the usual incision is the prerectal cut which is used also for prostatectomy. This operation requires considerable anatomical knowledge and skill and is not recommended for the general practitioner.

ALBARRAN'S TEST FOR THE FUNCTIONAL EFFICIENCY OF THE KIDNEY. Heresco, of Bucharest, (*Revue Pratique des Maladies des organes génito-urinaires*, No. 23, 1907, page 391) employed Albarran's test in 18 cases for determining the functional condition of the kidney. This test consists in producing polyuria experimentally and injecting phloridzin. Heresco maintains that Albarran's method is better than any other that has been proposed for the investigation of the functional condition of the kidneys. [Albarran's test, known as "experimental polyuria," consists in giving the patient from 400 to 600 grammes of a diuretic mineral water, such as Evian, and collecting the urine every half hour. The amount of urine, its molecular concentration, the amount of urea and chlorides are determined in percentages. Albarran found that in normal kidneys, the molecular concentration and the percentage of urea and chlorides diminishes in the same proportion as the amount of urine increases. Usually in diseased kidneys, Albarran found that the amounts of urea and chlorides diminished in disproportion to the increase in the amount of fluid excreted.—Editor.] Without this experimental polyuria test, the phloridzin test cannot be depended upon absolutely, according to Heresco, for he found that in three cases, no sugar was excreted after the injection of phloridzin and yet Albarran's test had shown that the kidney was healthy and was functioning well.

SYPHILIS IN ITS MEDICAL, MEDICO-LEGAL AND SOCIOLOGICAL ASPECTS.—By A. RAVOGLI, M. D., Professor of Dermatology and Syphilology in the Medical College of Ohio, Medical Department of Cincinnati University; Dermatologist to City Hospital of Cincinnati; Member of the Ohio State Board of Medical Registration and Examination. Published by The Grafton Press, New York. Octavo, cloth, illustrated, 536 pages. Price \$5.00 net.

This is a somewhat unique book. It is divided into two distinct parts. Part one deals with the medical aspects of syphilis, i. e., the pathology, symptomatology and treatment of the disease; part two deals with the medico-legal and sociological aspects of syphilis. We consider the second part the more important one of the two, for while the first deals with subjects found in every text book on syphilology, the second one shows a good deal of original research and study. The subjects dealt with in this part are syphilis and marriage, syphilis in relation to degeneracy, syphilis and public health, the regulation of prostitution, and prophylaxis of syphilis. We fear the author is a somewhat too faithful disciple of Lombroso, for he lays too much stress upon the physical stigmata of degeneration. The attempt to show that Szolgosz assassinated McKinley because he probably at some time had syphilis is in our opinion too far fetched. The language in some places is rather heavy, but the book is none the less a valuable one.

GONORRHEA.—By FREDERICK BAUMANN, Ph.D., M. D., Professor of genito-urinary diseases in the Reliance Medical College and Instructor in dermatology and venereal diseases in the College of Physicians and Surgeons, Chicago. D. Appleton & Co., New York. Price \$1.50.

This is a brief monograph on the diagnosis and treatment of gonorrhea, based chiefly on the writings of Oberlaender and Kollmann. The book represents nothing new, and while it may be of some value to the general practitioner, it has nothing to offer to the specialist in genito-urinary diseases.

DISEASES OF THE GENITO-URINARY ORGANS AND THE KIDNEY.—By ROBERT H. GREENE, M. D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and HARLOW BROOKS, M. D., Assistant Professor of Pathology, University and Bellevue Hospital Medical School. Octavo of 536 pages, profusely illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5.00 net; half morocco, \$6.50.

The authors have succeeded in producing a really valuable treatise on diseases of the genito-urinary and renal organs. Being the conjoined work of a surgeon and a physician, the medical and surgical aspects of the various diseases are treated with equal respect. Surgery is not allowed to usurp the entire field, as is often the case in books on genito-urinary diseases written by skillful surgeons. The chapter on the treatment of urethritis, while brief, is altogether admirable. The authors express the view, which is gaining more and more ground, that in the treatment of urethritis it is well to postpone local treatment by means of irrigations and injections until the discharge has assumed a mucopurulent character, relying in the meantime upon alkalies, balsams and proper hygiene. Very little space is devoted to sexual diseases proper. This is a pity, for in our opinion sexual disorders rank at least equally in importance with urinary and venereal diseases. Altogether we consider the authors' work well done and the volume is a worthy acquisition to the physician's library.

THE AMERICAN JOURNAL OF UROLOGY

VOL. IV.

MARCH, 1908.

No. 3

PROSTATIC HYPERTROPHY.

BY FOLLEN CABOT, M. D., NEW YORK

Attending Genito-Urinary Surgeon, City Hospital; Professor, Genito-Urinary Diseases, Post-Graduate Medical School and Hospital; Consulting Urologist to White Plains Hospital.

DURING the past ten years a vast amount of work has been done on the subject of prostatic disease and its treatment. Much gain has been made in the surgical treatment of prostatic cases, and the mortality, by increased skill in operating and in the after care, has been reduced from eighteen to twenty-five per cent. or more down to less than seven per cent. for all cases.

In this paper I shall not attempt to more than give an outline of the work done in the field of prostatic surgery. To-day the methods of treating the hypertrophied prostate are enucleation by the suprapubic or perineal route and the galvano-cautery methods of Bottini and Chetwood. To Young of Baltimore the profession is greatly indebted for much original work in the operation on and valuable investigations of the pathology of prostatic hypertrophy.

I. SUPRAPUBIC PROSTATECTOMY.

To Belfield of Chicago and McGill of Leeds is given the credit for the first operation on the prostate by this route. In 1895 Fuller of New York carefully described his operation for suprapubic enucleation with such important changes from the method of his predecessors, that the operation is distinctly one for which he deserves full credit and which properly is given his name. Freyer of London in

1900 performed practically the same operation but failed to give Fuller credit. In 1897 Watson of Boston also performed a suprapubic prostatectomy. The suprapubic operation is in my opinion the one of choice. The surgeon, however, should be familiar with the perineal method, too. I am convinced, however, that the perineal drain of Fuller is unnecessary, nor do I suture the suprapubic opening after the enucleation. It is performed by me as follows: The patient having been observed carefully for a few days, his bladder irrigated, his heart action, kidneys, and general condition studied, is shaved over the pubes and thoroughly scrubbed. He is then given gas and chloroform anesthesia, he first having been placed on his back on a table which permits of the Trendelenburg posture. The surgeon should have at least one assistant besides the nurse. An incision two inches long is first made from the pubes in the median line toward the navel down to the fascia and recti muscles. These latter are divided by the handle of the knife bluntly. Now a catheter which has been previously placed in the bladder is used to distend this cavity with air by the aid of a rubber bulb. This is better than water distention because the bladder rises into the wound. We now peel back the lower attachment of the peritoneum from the bladder. The next step is to retract the wound well and pass threaded needles one on each side through the bladder wall. A small cut is now made between these two sutures and the bladder opened and explored. The guys should be left in place. If we wish to enlarge the bladder opening it is better to do it by separation of the fibers rather than by cutting. The prostate is carefully examined and its size and contour determined. We explore the vesical cavity for stone or new growths. We get a better view of the bladder by this operation than by any other method. Now with a pair of blunt scissors we make a small slit in the prostate from the urethral opening for one-half inch back in the median line. Into this opening the surgeon passes the index finger of his right hand and begins the process of enucleation or separating the prostate from its sheath. At the same time the index finger of the left hand or perhaps two fingers are introduced into the rectum as sug-

gested by Ramon Guiteras. This is done to aid in the enucleation by lifting up the prostate and also preventing tears in the rectum in cases where there are adhesions between the prostate and rectal wall. This whole operation takes on an average not more than fifteen minutes and frequently less. Too much haste, however, is as bad as too long a time. The prostate often comes out in one piece, occasionally in two or three parts. In cases of tough fibrous prostates with adhesions to the rectum we may have great difficulty in the enucleation.

After the removal of the prostate it is in some cases well to lightly pack the prostatic wound with gauze wet with adrenalin chloride 1-3000. This prevents bleeding and should be removed in 48 hours. The bladder is cleared of all clots and a large rubber drainage tube of 50 French size placed in the bladder. Gauze is placed next the wound and over all a heavy dressing of absorbent cotton to catch leakage. No stitches are taken in the bladder or abdominal wound. The patient is put to bed and as soon as possible given frequently repeated drinks of some soft spring water. Never under any circumstances should these patients receive opium or any of its alkaloids. It affects the kidneys badly and depresses the whole economy. Many old men I am sure have been killed by this means. The after-treatment I shall consider later.

A two-step operation is done by performing a quick suprapubic cystotomy under local anaesthesia or gas and chloroform. The bladder is drained for a week or ten days and sometimes longer. Then when the cystitis and the patient's general condition had markedly improved, a prostatectomy is performed through the same wound. The idea is to give the enfeebled patient two little operations instead of one big one. Lilienthal has employed this method in several cases with brilliant results. I also have recently used it and believe it will eventually be an operation of choice in all emergency prostatectomies and also in a large percentage of prostatitis, where we have any doubt of the operative risk. It is a procedure akin to nephrotomy and subsequent nephrectomy for pus kidney.

The preliminary cystotomy does all a complete pros-

tatectomy can do; that is, gives perfect drainage without much shock. The patient should not remain in bed more than a few days after it. The second operation, the enucleation of the prostate, is made usually with surprising ease and the man should suffer from no more shock than in the first operation and be out of bed in a few days. Neither stage in this method of Lilienthal's should take more than 10-15 minutes in its performance.

The perineal enucleation of the prostate has many advocates. It is performed by me in the following way: The patient after having been shaved and scrubbed is placed on his back in the perineal position and an external urethrotomy performed by median incision. The prostate is now carefully examined through the incision. If well up in the bladder a retractor of the Young or Syms type will often be of service in bringing it within reach. The prostate is now separated from its capsule with the index finger of the right hand. The index finger of the left hand is placed in the rectum to assist in the enucleation. After the lobes are somewhat freed a prostatic hook devised by me is useful in grasping and removing the loosened lobes or parts of them. We next introduce a large perineal rubber drainage tube of 40 French and if there is much bleeding, pack the wound. A couple of deep stitches are now taken in the wound and the tube tied in place.

The *Bottini operation* has been in use for many years and recently has met with considerable favor. Many surgeons who perform prostatic operations advise the use of the Bottini method in certain very debilitated old men. Surgeons of high standing, like Horwitz of Philadelphia, Willy Meyer, Bangs and Guiteras of New York, and Hagner of Washington, all have had excellent results with this method. It is done as follows: The Bottini instrument is passed into the bladder and then withdrawn till the male blade rests against the part where a burn is to be made. The blade is heated by electricity white hot and the furrow burned. Two or three furrows or burns are usually made. The operation in skilled hands is quickly performed and as I have said is of value in a limited number of cases.

Chetwood of New York, has devised a method of galvanocautery on somewhat the same principle. By his method

the bladder is first opened by perineal urethrotomy and then by aid of sight and touch a special instrument is used to make incisions into the offending tissues. The bladder is then drained by a perineal tube. Wishard of Indianapolis has an instrument somewhat similar to the Bottini, which he uses in certain selected cases.

The question of the best operative route in prostatic surgery is an important one. In my opinion there is no one route for all cases. In a personal experience with 75 prostatectomies, 41 by suprapubic and 34 by perineal route, I have come to the conclusion that both routes are valuable.

I believe the two-stage method of operation in feeble individuals will eventually supplant the Bottini, Chetwood and Wishard methods of galvano-cautery.

In the patient with a prostate by rectal feel low down and easily movable, I believe the perineal route the one of choice.

In the case with a large prostate difficult to reach by the rectum, not easily movable and with a probable large intravesical so-called third lobe, I use the suprapubic method. In all cases of doubt as to the bladder condition, the possible presence of calculi, pockets or new growth, the suprapubic route is the operation of choice. In all emergency operations, such as complete retention where the catheter is useless, severe hemorrhage or great exhaustion, a two-stage operation should be the operation of choice.

In my opinion the percentage of operations suitable for the three different methods is about as follows:

Suprapubic prostatectomy.....	40 per cent.
Complete two-stage prostatectomy..	40 per cent.
Perineal prostatectomy.....	20 per cent.

In operating by the suprapubic route we are able to completely examine the bladder, a matter of much importance. We cannot always do this with the cystoscope previous to operation owing to presence of blood, bladder irritability, mechanical obstruction of prostate, etc.

The wound can be more satisfactorily dressed and

watched than can the perineal cut. It can be cared for by female nurses, a matter of much importance in hospital practice.

The urinary results are in my experience better than those following perineal prostatectomy.

In regard to sexual power, I believe we do less damage to the ejaculatory ducts by the suprapubic than by the perineal route. I do not believe that these ducts can as a rule be saved by a dissection described by Young of Baltimore in his perineal operation. In any event, in these cases it seems to me the question of procreation is of minor importance.

Suprapubic prostatectomy produces a slight degree more of shock than the perineal. However, in cases where it is a question of the patient's resistive power an operation by Lilienthal's two-stage method may be adopted, and here the shock is much less than in a complete prostatectomy by the usual perineal operation.

In a later paper, I shall give in detail the operator's results after some months have elapsed.

129 East 31st St.

ACUTE BACTERIUM COLI INFECTION OF THE BLADDER

By CHARLES GREENE CUMSTON, Boston.

BACTERIUM coli cystitis is far from being uncommon, is easily overlooked and quite readily mistaken for other affections. It is not difficult to understand that a patient who is suddenly seized with a chill and high temperature, severe abdominal pain, perhaps, in the lower part of the abdomen, and who, at the same time, presents increased frequency and pain on micturition, might be suspected to be suffering from a peritonitis, due to an inflammatory process in the appendix. Also that the frequency and pain on micturition were caused by the pelvic inflammation resulting from the appendicitis. Under such conditions a colon bacillus infection might, and often is, overlooked, and treatment directed to some entirely wrong end.

A few months ago Mr. C. B. Lockwood delivered a

clinical lecture on this subject at St. Bartholomew's Hospital and thoroughly reviewed this important vesical lesion. He points out that the onset is frequently sudden and violent, the temperature may rapidly rise to 103° or 104° F., while the pulse may increase in beats until over a hundred pulsations are reached. The patient is obviously in a state of high fever, and may even have a rigor. At the same time excruciating pain in the region of the bladder is complained of, more particularly about the neck. The pain is said to be at its height when the bladder empties itself, which it does very frequently, perhaps even as often as every twenty minutes, but at all events, the frequency of micturition is one of the most obvious and distressing symptoms.

With such signs one naturally examines the patient and probably the physician's attention would be more particularly directed to the viscera occupying the lower portion of the abdomen. Palpation will show muscular rigidity and in cases where the urinary bladder is inflamed, this also applies as it does to the gall bladder, kidney, appendix, and so forth. And what is more, the lower part of the abdomen over the region of the bladder is tender on pressure, particularly in the semilunar lines.

Besides the pain, tenderness, and rigidity in the anterior aspect of the abdomen, one will find on rectal examination that the prostatic urethra is tender, while the prostatic lobes will be found swollen and exceedingly sensitive to pressure. Pressure upon the trigone of the bladder will usually be quite painful, and Lockwood says that he has occasionally met with pain and tenderness in the region of the seminal vesicles.

It is readily understood that an infection commencing in the bladder may spread along the guts which communicate with the interior of the bladder or urethra, so that in colon bacillus cystitis, one not infrequently observes that not only are the vesiculæ seminales swollen and tender, but that the inflammation has spread along the spermatic cord, so that the testicle and epididymis have become tender. Occasionally, a very severe orchitis is encountered.

The considerable tenderness in the lower part of the abdomen with muscular rigidity, clearly indicates the presence

of some tender organ, which may or may not be the bladder. Such symptoms might fairly well correspond with an attack of peritonitis from appendicitis, when the appendix has a pelvic situation, and in a very marked and acute case of colon bacillus cystitis, the patient will suffer considerably from abdominal distension and flatulence.

It may be inferred that the acute inflammatory process of the interior of the bladder not only involves the mucosa, but the muscular structures and peritoneum as well and possibly the intestines which are in contact with the vesical peritoneum. It is quite true that in some cases of appendicitis the appendix lies in close proximity to the bladder and has actually perforated this organ and caused a colon bacillus infection with pus in the urine, but such instances are of extreme rarity.

As regards the examination of the urine, it would seem that this fluid presents a peculiar odor in colon bacillus infection of the bladder, described as fishlike. This is to be particularly noted, because it might be presumed that, when this organism is present in the bladder, it might give rise to a fecal odor to the urine.

The only point about the physical characters of the urine to which attention should be drawn is that it may deposit pus or mucus. The former is sometimes in such a small quantity that it is only discovered on microscopic examination, but what is more constantly seen with the naked eye in colon bacillus urine are minute flakes of lymph and very often shreds, which microscopically have been shown to be leucocytes, columnar epithelium and colon bacilli, and which come from the prostatic ducts. Usually vast quantities of small, motile, oval-ended colon bacilli can be seen throughout the microscopic field in acute cases.

As already stated, it is of extreme importance to diagnose this dangerous type of genito-urinary infection, because, unless it is properly treated, very dangerous complications may arise, and perhaps one of the most dangerous is the extension of the infection along the ureters to the renal pelvis. It is at this stage of the affection that the surgeon is not infrequently called upon to see the case, because, when the cystitis is associated with an ascending pyelonephritis,

the symptoms rather closely simulate renal calculus. It is easy to suppose that the patient with an enlarged kidney which is tender, and which, perhaps, presents muscular rigidity over it, pain along the ureters and blood in the urine, is suffering from a stone in the kidney, and it may be difficult to disprove this belief.

A very painful and severe complication of colon bacillus cystitis is inflammation of the prostate, but it is probable that abscess formation is most infrequent; however, Lockwood, Herring, and Daniel believe that it causes some forms of enlargement.

The endoscope and segregator are often of diagnostic assistance, but the cystoscope cannot be used during the acute stage. In the more chronic cases, however, this instrument may be resorted to and will show specks of lymph waving and floating about over the inner surface of the bladder. There is considerable dilatation and hyperemia of the mucosa, usually most marked at the ureteral orifices. Their papillæ are swollen, their mucous membrane inflamed, and this would cause one to suspect ascending pyelonephritis. Sometimes the mucosa lining the prostatic ring is inflamed, swollen, and bleeds easily, and may explain the origin of the blood found in the urine.

Just how the colon bacillus enters the human organism is hard to say, but the fact still remains that many cases who have suffered a long and dangerous form of colon bacillus cystitis have had some antecedent illness, the commonest, perhaps, being a severe attack of influenza, but, as it is customary nowadays to call every affection with a rise in temperature, influenza, one cannot help feeling skeptical on that point, and more scientific evidence is to be desired. But whatever may be said about an antecedent cause, there is no question but that the colon bacillus descends from the kidneys. It is probably generally admitted that bacteria in the general circulation can pass through the kidneys to the bladder, and there is also abundant evidence to prove that pyogenic bacteria and intestinal organisms, more especially the typhoid bacillus, can pass through the kidney, descend the ureter, and infect the bladder. Why they should implant themselves on one bladder and not on another is hard to say,

but some cases of severe colon bacillus cystitis arise in males who have some obstruction to the exit of the urine, such as stricture or prostatic enlargement, which prevents them from completely emptying the bladder. This infection may also occur in the female when the bladder cannot be emptied. Colon bacillus cystitis is not infrequent after rectal operations. It may have entered the bladder through the urethra, but it is also quite possible that the bacillus may pass into the circulation from the rectal wound and be carried downwards through the kidneys and into the bladder.

THREE INTERESTING CASES TREATED WITH GOMENOL.*

BY CARL LEWIS WHEELER, M. D., Lexington, Ky.

1. Chronic Ulcerative Cystitis.
2. Chronic Ulcerative Trachelo-basal Cystitis—A Phosphatic Capped Villous Papilloma.
3. Tubercular Cystitis with involvement of Prostate, Seminal Vesicles and Testicle.

CASE I. Ulcer of the Bladder—15 years' standing.

Mrs. H. Age 68. Intense bladder symptoms existed for 15 years—agonizing at times. She has been in the hands of some of the best physicians—using everything that has been suggested for cystitis. Urinary findings were as follows:

Crystalline and Amorphous Sediment.—Crystals of Ammonio-magnesium-phosphate (complete and incomplete) fairly abundant.

Red Blood Corpuscles, scanty. Pus Corpuscles, moderate.

EPITHELIA from Bladder. Upper layer, scanty. Middle layer, abundant (fatty). Deep layer, moderate (fatty).

Vagina.—Upper layer, moderate. Middle layer, scanty.

Connective Tissue Shreds.—Broad and abundant.

Other features.—Free fat granules and globules. Connective Tissue Shreds surrounded by Zooglea masses, bacteria and cocci.

Examination for Tubercle Bacilli.—Negative.

* Gomenol is the French trade name of the volatile oil of *Melaleuca* or *Cajuputi viridiflora*. Chemically it consists principally of cineol (about 66 per cent.) and terpineol and terpineol valerate (about 30 per cent.) The oil is used extensively in France in various diseases of the bladder, and is beginning to gain firm foothold in this country.—EDITOR.

Diagnosis.—Mild catarrhal Vaginitis, with chronic Ulcerative Cystitis.

On July 24, 1906, patient was sent to the hospital for a thorough examination under general anaesthesia.

Cystoscopy revealed an intense catarrhal cystitis with a solitary ulcer about the size of a dime towards the posterior border of the trigone—midway between right ureteric orifice and median line. The ulcer was covered with greyish white film with eroded edges. Bladder capacity, four ounces.

Following the cystoscopy there was an instillation of Gomenol Cil 50% 10 c.c.

July 31st. An attempt to irrigate the bladder with sterile water almost produced convulsions and the idea of ever again irrigating was abandoned. Following this there was instillation of Gomenol Oil 50% 10 c.c.

During month of August there was an instillation of Gomenol Oil 25% 10 c.c. every second day.

September 1, 8, 18 and 25 there were instillations of Gomenol Oil 25% 10 c.c.

October 1, 8, 22, instillations Gomenol Oil 25% 10 c.c.

November.—There were no treatments.

December 6, 15, 28, instillations of Gomenol Oil 10% 10 c.c.

January 5, 14, instillations Gomenol Oil 10% 10 c.c.

February 3, 14, 23, instillations Gomenol Oil 10% 10 c.c.

March 2, instillations Gomenol Oil 10% 10 c.c.

April 17, 22, instillations Gomenol Oil 10% 10 c.c.

May 9, 23, instillations Gomenol Oil 10% 10 c.c.

June 9, instillations Gomenol Oil 10% 10 c.c.

Patient was dismissed and it is now six months since she has had a treatment—and there has been no return of the trouble—she goes all night without emptying her bladder and 5 or 6 hours during the day. She told me a few days ago that she had forgotten that she even had a bladder and has had more comfort in the past six months than she has had in fifteen years.

CASE II. Mrs. V. Chronic Ulcerative Trachelo-basal Cystitis—A Phosphatic Capped Villous Papilloma.

“Hæmaturia with intense bladder symptoms existing ten months.” Urinary findings were as follows:

Crystalline and Amorphous Sediment.—Concretions of Ammonio-magnesium and calcium phosphates.

Red Blood Corpuscles, very abundant.

Pus Corpuscles, moderate.

EPITHELIA from convoluted tubules of Kidney, scanty. Pelvis of Kidney and Ureter, moderate (fatty). Bladder.—Upper layers, moderate. Middle layers, abundant (fatty). Some with endogenous formations. Deep layers, moderate (fatty). Vagina.—Upper layers, moderate.

Connective Tissue Shreds.—Abundant. Some rather broad and some very large.

Other features.—Zooglea masses. Free fat granules and globules, micro-organisms.

Diagnosis.—Chronic Ulcerative Cystitis—Chronic Catarrhal Uretero-pyelitis with hyperaemia of kidney. Hemorrhage of Vesical origin.

Remarks.—The cause of such pronounced Vesical irritation was very puzzling from the fact that some of the epithelia from middle layer of the bladder contained endogenous new formations; this secondary change in epithelia is indicative of pressure probably due to some growth in the immediate locality.

The presence of such large shreds of connective tissue pointed to a vesical neoplasm; while presence of such concretions of mixed phosphates were suspicious of Stone.

Cystoscopy.—First cystoscopy was done at home of patient without anesthesia; owing to intense pain the procedure was rapid. A Stone about the size of a large hazel-nut was discovered within the trigonal area.

Patient was ordered to hospital for operation.

Second Cystoscopy (under general anesthesia).—This same stone was discovered but posterior to the trigonal area, to the left of the median line. There was an ulcerative TRACHELO-BASAL cystitis, the anterior, posterior and lateral walls and summit of the bladder were apparently normal.

The direct cystoscope armed with a ureteral bougie was introduced. A thrust at the stone with the ureteral bougie to turn it around and ascertain the size and if it was adherent to bladder wall—smashed THE PHOSPHATIC CAP—exposing a villous Papilloma.

The patient refused operation and pleaded for some kind of local treatment.

Complying with her request, she was given instillations of Gomenol Oil 50% 10 c.c. into the bladder every day for ten days.

The result of the treatment was so marked, that the instillations were changed to every 3rd day for five treatments—then every 4th day for six treatments—finally every 7th day for four treatments, and the patient was dismissed.

From the time of the first instillation the patient began to improve, the pain was less severe, intervals between urinations lengthened, urine began to clear of pus and blood and the bladder capacity increased.

The treatment covered about three months and at the expiration of this time the urine was entirely free from pus and blood and was practically clear. She can go all night without getting up to empty her bladder and four or five hours during the day.

Third Cystoscopy.—The intense Trachelo-basal cystitis has entirely disappeared, the vesical mucosa is apparently normal. The Papilloma is seen posterior to the trigonal area, adherent to the bladder wall—internal to the left ureteric orifice. Bladder capacity, 10 ounces.

The patient is still under my observation. She is carrying this vesical growth with practically no disturbance of the urinary function.

The bladder was twice irrigated—only at the times it was cleared for the cystoscope.

CASE III. Mr. McC. Age 31. TUBERCULAR CYSTITIS.

Three years ago consulted a prominent surgeon of Cincinnati in regard to enlargement of right testicle. The condition was diagnosed as tubercular and the testicle was removed. Patient was advised to go and live in the West. This he did, but soon began to develop bladder symptoms, which grew progressively worse; he became very much discouraged and at the expiration of two years returned to Kentucky.

There was frequency of urination (every 20 to 30 minutes during the day and 12 to 15 times during the night) accom-

panied by intense pain, while the urine was loaded with pus and blood. The remaining testicle was involved and larger than your fist. The prognosis looked very grave indeed.

Urinary findings were as follows:

Crystalline and Amorphous Sediment.—Crystals of Triple Phosphates and Globules of ammonium urate. (abundant)

Red Blood Corpuscles.—Few.

Pus Corpuscles.—Moderate (with fatty globules).

EPITHELIA from convoluted tubules of kidney.—Few. Pelves of Kidney and Ureter, moderate (fatty). Bladder—Upper and Middle layers, moderate (fatty). Deep layers, scanty. From Prostate and Prostatic Ducts, moderate (with endogenous new formations).

Other Epithelia.—Seminal vesicles and Ejaculatory Ducts. (few)

Connective Tissue Shreds.—Moderate. Some large.

Other features.—Zooglea masses—Bacteria.

Examinations for Tubercle bacilli Positive.

Diagnosis.—Chronic Ulcerative Cystitis (due to tubercle bacilli), Chronic Prostatitis, with hypertrophy, Seminal Vesiculitis—Chronic catarrhal Pyelo-nephritis.

Examination.—Testicle was much enlarged, tender, with two caseous foci. Rectal examination showed right lobe of prostate (right testicle removed two years previously) to be about normal in size with two distinct nodules toward the outer margin. Left lobe was very large and nodular—almost impossible to circumscribe—and passing backward beyond posterior border to palpate the seminal vesicle, I ran into a large infiltrated mass. Bladder capacity $3\frac{1}{2}$ ounces.

Treatment.—Both caseous foci in the testicle were incised and thoroughly curretted—Packed with plain gauze saturated with Gomenol (Pure).

Into the bladder was instilled 10 c.c. Gomenol Oil 50%.

This treatment was continued every day for two weeks when the patient left the hospital; then he came to the office every other day for eleven weeks.

The subsequent treatments consisted of instillations of 10 c.c. of Gomenol Oil 50% and packing the testicle with Gomenol (Pure).

At this time the bladder capacity had increased from *three and one-half ounces to fourteen ounces*.

The testicle was about the size of a hen's egg. One focus had completely healed. There was a small sinus leading into the other focus that probably discharged one drop of pus in 24 hours.

He could go nearly all night (until 4 A. M.) without getting up to empty bladder and 3 or 4 hours during the day.

He felt so much improved and encouraged that he insisted upon returning to his business in the West. He took with him two No. 16 Coudé silk catheters, one instilling syringe and one litre of Gomenol Oil 50%—with directions for one treatment a week.

It has now been nearly eight months since he left and in a letter a few days ago he tells me that his bladder capacity is still *fourteen ounces*, testicle is normal in size with that small sinus which would probably discharge one drop of pus in two or three days. He does not have to get up to empty bladder during night; and bladder tolerance has improved during the day.

For two years Gomenol in my hands has proven most satisfactory, and I can truthfully say to my professional friends that it is indeed worthy of a trial.

I use the oil in various strengths as 5%, 10%, 20%, 33 1-3% and 50%. If I find the strength used too irritating, then I use next milder, and so on until there is tolerance.

In the most highly inflamed cases of acute cystitis, I never irrigate, but empty the bladder and instill (as I call it) the "Balm of Gilead."

Gomenol is mentioned in the treatment of Tubercular Cystitis by Greene and Brooks; "Diseases of the Genito-Urinary Organs and the Kidneys."

It is also favorably mentioned by Kreissl; "Uro-Genital Therapeutics" in the sections on Diseases of the Urethra, Prostate, Bladder and Kidney. Especially valuable in vesical ulcers and tuberculosis of the uro-genital tract.

Dr. Kreissl also recommended the use of Gomenol in a paper on "Tuberculosis of the Bladder and Kidney," read at the annual meeting of the County Medical Society, at Davenport, Ia., 1903.

Trust Co. Building.

SPASMODIC HYSTERICAL RETENTION OF URINE.

By G. PAUL LAROCHE. M. D., Richmond, Va.

THE following interesting case recently came under my observation and will form the basis of a few remarks on the treatment of spasmodic retention of urine.

A young woman, twenty years old, unmarried, has been for the last four or five years the victim of a very pronounced type of hysteria. I reported her case in the *American Journal of Medical Sciences* of June, 1907, as a case of abdominal hysteria with "phantom tumor." She has had appendectomy performed for appendicitis and has also been operated upon for the phantom tumor which was also, after a tedious course of treatment, finally cured.

After the operation for appendicitis she had to be catheterized for about two weeks, and after the operation for phantom tumor she was also catheterized, but for not quite so long a time. She has had also hysterical amenorrhea and constipation.

Upon one occasion after a rectal examination the patient sank into a stupor, during which she was relaxed, breathed easily except for occasional spasmodic efforts and the pupils were dilated. She responded to pain caused by flexion of the great toe and was aroused without difficulty and made to walk.

June 24th, 1907, she was referred to me for the treatment of retention of urine. The following history was elicited:

April 25th, having been in good health for several months, she had a slight fall which caused her no trouble in the way of bruises, but which was followed that night by vomiting, colic, hysterical stupor and retention of urine. Ever since then she has been unable (?) to void urine and has been catheterized systematically three times each day.

She has also had her bladder irrigated and has remained most of the time in bed.

Physical examination notes the same hysterical type as was manifested when I saw her last year while she had the phantom tumor, but the abdominal symptoms are practically cured.

Vaginal examination, made for the purpose of determining the presence of organic disease, was entirely negative save for a mild catheter urethritis. She has no urethral caruncle and a soft rubber catheter is introduced with ease and very little pain. Eight ounces of cloudy urine containing mucus and a small amount of pus were withdrawn. A careful examination with the cystoscope was made without difficulty and the interior of the bladder showed diffuse redness, but no signs of ulceration nor other local lesions. I then filled her bladder with sterilized solution of potassium permanganate 1 to 10,000 and announced to her that I would not withdraw it; she would have to void it. Several voluntary attempts at urination were futile. I then administered a half gallon of warm water through a short nozzle into the lower bowl and sent her to the toilet. The discharge of the water from the rectum was attended by simultaneous exacuation of the contents of the bladder. I then gave her a prescription of tincture of belladonna and sodium bromide as a local sedative to the bladder and instructed her positively never to be catheterized again, and that if subsequently she suffered with retention of urine, to give herself an enema. She returned the next day suffering again with retention and said she had given herself the enema but without effect. Vaginal examination, however, detected a mass of fecal material in the rectum. A second enema was administered and she at once voided urine. She gave herself an enema once more and by this time became tired of the trouble and now voids urine spontaneously.

The diagnosis of hysterical retention of urine implies a careful, conscientious examination of the local organs and all other organs in the body; and in order that the psychosis be assigned as a cause of retention, other manifestations of hysteria must be present. The mere fact that no local lesions

are found in the bladder does not by any means justify the diagnosis of hysterical retention of urine, nor must such a conclusion be reached through a process merely of exclusion. Spinal disease, brain disease, acute general exhaustion and many other serious organic conditions are attended by retention of urine and it is unjust to the patient for this serious condition of affairs to be treated for hysteria unless it is the genuine article. Rarely, but occasionally, a young woman with nymphomaniac tendencies may refuse to void urine in order to secure the local manipulations incident to catheterization. Such a case was reported by Valentine three years ago. The present case I believe to be due to no such cause. Traumatic urethritis in this case further kept up the retention, for, though the urethra was not markedly inflamed, yet in a hysterical individual even the trivial pain incident to the passage of urine over a sensitive urethra will be sufficient to cause spasmodic retention.

The treatment of spasmodic retention, whether it be hysterical or not, will be successful if a copious enema is administered. The rationale of the treatment is easy of explanation. The rectum and bladder are supplied with the same nerves and the acts of defecation and urination are performed largely by the same muscles. So that it is the universal rule, save in the presence of organic disease, that the act of defecation is attended invariably by urination, provided there is any urine in the bladder. In fact it is impossible to retain the bladder full of urine while the bowels are allowed to move, except when there is organic disease of the bladder or the urethra or their nerve and muscle mechanism. Indeed spasmodic retention of urine, even when caused by organic disease, may often be relieved by the administration of a purge or an enema.

Some years ago when I was resident physician in the University of Pennsylvania Hospital in Philadelphia, I noticed that cases of retention of urine incident to operation for hemorrhoids, were invariably relieved when the bowels moved. I at once began the administration of purges or enemata the day after such operations and since then I have not had to catheterize a patient after the operation. It is

my invariable rule now as a part of the after treatment of cases operated on for hemorrhoids to administer rectal douches for the treatment of this annoying complication of convalescence and never does catheterization have to be performed. It is also true that the spasmodic retention of urine commonly seen in cases of virulent gonorrhea may frequently be relieved by the administration of an enema. The same is true of the spasmodic retention incident to acute prostatitis, seminal vesiculitis, and epididymitis.

So that in conclusion I am prepared to state without reservation that all cases of hysterical retention of urine and nearly all cases of spasmodic retention, even when due to acute inflammation of the genito-urinary organs, may be at once relieved by the bowel evacuation following the administration of a copious rectal enema. I trust that other men will bear this little suggestion in mind when dealing with such cases. Aside from the not insignificant amount of trouble and inconvenience to attending physician the relief of this distressing symptom by means other than the catheter will oftentimes avoid the development of traumatic urethritis and its sequelae.

PYELITIS COMPLICATING PREGNANCY. W. F. Orłowski (*Zeitschrift für Urologie*, 1907, No. 2) reports three cases of acute pyelitis developing in pregnant women. In all these cases, the pregnancy was interrupted and the fetus died. The pressure of the pregnant uterus upon the ureter, especially on the right side, favors the development of pyelitis. In order to produce the infection itself, the presence of germs is of course necessary, and these germs need not be specific (neither the gonococcus nor the tubercle bacillus need necessarily be present). The disease often attacks multiparae and usually appears during the latter part of pregnancy. Its course is not materially different from that of ordinary pyelitis. Its prognosis is favorable unless the renal tissue is involved. Orłowski favors the conservative method of treatment in these cases.

EDITORIAL

NIHIL NOVI SUB SOLE

OR

CALOMEL OINTMENT AGAINST SYPHILITIC INFECTION.

METCHNIKOFF, Roux and Salmon's recent investigations with a 33 per cent. calomel ointment as a prophylactic against venereal, or more strictly speaking, syphilitic infection, have been heralded far and wide. And these indefatigable workers do deserve great credit for having brought prominently to the attention of the public a method of prophylaxis which may prove of incalculable benefit to humanity. It would be a mistake, however, to believe that the researches of Metchnikoff and his associates are entirely original or that mercury has never been thought of before as a prophylactic against luetic infection. On the contrary, the drug was recommended as a preventive as early as the 18th century. Thus, in Trousseau's Treatise on Therapeutics you will find that Falck (Treatise on the Venereal Diseases, London, 1771) and Harrison (Dissertatio de lue venerea, Edinburgh, 1781) thought that luetic infection might be prevented by rubbing the loins with mercurial ointment before coitus. L. Warren caused the glans to be rubbed with the ointment (Nouvelle méthode pour guerir la gonorrhée virulente, Amsterdam 1771). Assalini ordered friction of the penis with a mixture of calomel and saliva (Essai médical sur les vaisseaux lymphatiques, Turin 1767). Guilbert de Préval had the genital parts washed with aqua phagedencia before and after coitus (Examen de l'eau fondante de M. Guilbert, Paris 1777). J. Hunter ordered urethral injections after coitus of solutions of bichloride (1-1½ grs. to 8 ozs. of water).

Thus again do we see that *nihil novi sub sole*, that there is nothing new under the sun.

Original Abstracts and Translations

ORCHITIS AS THE RESULT OF EXERTION.—Paul Delbet, of Paris, (*Revue Pratique des Maladies des Organes génito-urinaires*, January 1, 1908), says that the occurrence of orchitis as the result of exertion has never been clinically established beyond question. He reports a case of orchitis which was supposed to be due to exertion, but which in reality was gonorrheal in origin. The patient was a married man who had led a very irregular life. While riding a bicycle, he made a violent effort and claimed to have crushed his testicle against the border of the saddle. An acute orchitis developed and the attending physician treated the trouble with various local applications for three weeks without success. On examination, the testicle was found very large, the mass consisting chiefly of the epididymis, the cord was swollen and tender. The latter point led to the suspicion that the trouble was of urethral origin. Twenty years previously the patient had had a gonorrhea which disappeared at the end of six weeks under internal treatment. Numerous shreds were found in his urine and a stricture of 14 French was found in his bulboperineal region. The orchitis was, therefore, of urethral origin and disappeared under treatment directed to the cause. This consisted in the use of sounds and irrigations with potassium permanganate. The moral of this is that we should always look for a urethral lesion in cases of orchitis, even when a traumatism seems to be the exciting cause.

SPINAL ANESTHESIA IN URINARY SURGERY.—Victor Pauchet, of Amiens, (*Revue Pratique des Maladies des Organes génito-urinaires*, January 1, 1908), has used spinal anesthesia in 250 cases of operations upon the urinary organs. He claims that even operations upon the kidneys may be performed with this method, provided, the patient be placed at an angle of 30 degrees for five or ten minutes after the injec-

tion. The technique which he employs is as follows: The instruments consist of a Luer hypodermic syringe holding 2 cc. and a platinum needle 10 cm. in length. The anesthetic consists of a solution in distilled water containing sodium chloride and 0.07 grammes of stovaine. This solution is sealed in bulbs containing half a cc. of fluid. Usually from 0.05 to 0.06 grammes of the alkaloid is used. The patient bends his back by inclining forward at a sharp angle and the needle is introduced in the median line at a level corresponding to the line joining the iliac crests, between the fourth and the fifth lumbar processes. The needle penetrates and from twenty to thirty drops of fluid are allowed to escape, which are replaced by the solution. The injection is carried out in the following manner: The contents of, or a portion of the contents, of the bulb is taken up with the syringe, the needle is attached to the syringe and a small amount of the spinal fluid is aspirated, which mixes in the syringe with the stovaine solution. When the mixture becomes uniformly whitish, the mixture is injected into the spinal canal. Ten minutes later, the operation may be performed.

Some patients suffer from nausea after the injection, but this symptom lasts only a few minutes. In about 25% of patients, headache is present within the first ten days after the operation and sometimes the pain is so severe that morphine has to be used. In the author's experience, the method is of great value and is comparatively safe.

THE USE OF ATOXYL IN THE TREATMENT OF PRIMARY AND EARLY SECONDARY SYPHILIS.—G. Nobl (*Wiener Klin. Wochenschrift*, 1907, No. 44) reports 45 cases of primary and early secondary syphilis, and as the result of his experience regards this drug as unsuited for the preventive or the regular treatment of syphilis. The drug had no effect of a specific character upon the spirocheta. The spirocheta remained alive for hours and could be seen moving when kept in 20% solutions of atoxyl.

ATOXYL IN EXPERIMENTAL SYPHILIS IN MONKEYS AND RABBITS.—P. Uhlenhuth, E. Hoffmann and O. Weidanz (*Deutsch. Med. Wochenschrift*, 1907, No. 39) report results which are quite in contrast with those recorded in the article

noticed above. While most of the control animals developed a distinct syphilitic keratitis at the site of the point of inoculation, none of the animals treated regularly with atoxyl showed any specific changes either in the cornea or the iris after inoculation. The authors conclude that atoxyl is of benefit, not only as a curative but as a preventive measure in animals, and that in all probability it will be of value in human beings.

LYMPHOCYTOSIS IN THE CEREBROSPINAL FLUID IN LATE HEREDITARY SYPHILIS.—W. Kretschmer (*Deutsch. Med. Woch.*, 1907, No. 46) investigated the character of the leukocytes in the cerebrospinal fluid of late hereditary syphilis. In newly born children and in the first year of life, a lymphocytosis was usually found. In two cases the same was found in adults. It would be interesting to determine whether specific treatment would make the lymphocytosis disappear. (These findings are in line with the results of the investigations of Widal and others, who found that there is a relative lymphocytosis in syphilitics who are suffering from tabes. The examination of the cerebrospinal fluid for the lymphocytosis of syphilis has been employed as a differential method to distinguish real locomotor ataxia from functional meningeal symptoms which simulate tabes.—Ed.)

THE DIAGNOSTIC VALUE OF CHROMOCYSTOSCOPY BY THE METHOD OF VOELKER AND JOSEPH.—Thelen, of Cologne, in his report on this subject to the German Urological Society (*Folia Urologica*, December, 1907), declares that this method is of marked diagnostic value in many cases of surgical diseases of the kidneys. It cannot replace catheterization of the ureters nor the methods of functional, renal diagnosis, but may be of value in cases in which these methods are too difficult to apply. In a large number of patients with healthy kidneys, he found that the injection of 20 cc. of a 0.4 per cent. of indigo carmine in salt solution gave rise after an interval of from ten to twenty minutes to an intense blue color of the urinary stream on both sides. (Viewed through the cystoscope.) The method is of value in assisting us to find the urethral mouths, especially in a bladder which is the seat of marked pathological changes. It also enables us to

observe and compare the rate of secretion of each kidney. The author found, however, that the diagnostic value which Voelker attributes to the manner of excretion of the urine in each kidney does not always hold good. Thus, he found in some cases that pauses of several minutes occurred in the excretion of urine from healthy kidneys, while on the other hand, he saw cases of pyelitis in which the urine spurted every few seconds. He found, however, that in four cases of nephrotomy, the secretion of urine was accelerated in the remaining healthy kidney. Much more importance should be attributed to the time of onset of the indigo carmine excretion, and to the intensity of the color. He was able to compare these data with those of urethral catheterization and found the methods usually to give corresponding results. He employed the method of chromocystoscopy particularly in tuberculosis of the kidneys. In two cases in which the tuberculous process was unilateral and but slightly advanced, the late appearance and the diminished intensity of the color were found to indicate a defective function in the diseased kidney, as was later demonstrated by the operation. ,

A STUDY OF PROSTATIC SECRETION IN HYPERTROPHIED PROSTATE.—Berthold Goldberg (*Folia Urologica*, December, 1907) insists upon the necessity of examining the prostatic secretion in the diagnosis of prostatic hypertrophy. He found that in cases of prostatic hypertrophy in which the patient had never had gonorrhea and never had been infected by a catheter, leukocytes were frequently present in the secretion. In these cases, the secretion was scanty and difficult to obtain. As a direct result of severe, long continued gonorrhea, old men who have hypertrophied prostates suffer from all the well known symptoms of this latter malady. Older men as well as younger individuals in such cases have a chronic prostatitis accompanied by paresis of the bladder. The behavior of lecithin in the prostatic secretion of these cases depends partly upon diminished prostatic activity, partly upon retention and partly upon the effects of leukocytosis.

FREQUENCY OF GENITAL DISTURBANCES IN THE INSANE.—When a physician has occasion to examine an insane

woman, and when he is in doubt as to the cause of the mental disease, he must always turn to the genital sphere for a point of departure of the mental malady. The frequency of disturbance in the generative organs in women affected with mental disease has been discussed recently by Verhaege in a thesis presented to the Faculty at Lille. Picqué some time ago spoke on the same subject before the French Surgical Society, testifying that he had noticed in the insane asylum a certain number of women affected with chronic vaginitis or metritis; others with ordinary prolapse of the uterus; others with fibroid tumors, etc. To his astonishment, when the local disturbances in the genital organs had been treated surgically, the mental symptoms markedly improved or even disappeared.

Verhaege made his observations in the asylum at Bailleul, upon cases of puerperal insanity. Of 26 patients presenting this type of insanity, 22 had some inflammatory affection of the genital organs, one had a prolapse of the uterus, and but three had no lesions in the genital organs. In other words, 88 per cent. of these patients had inflammatory lesions of the genital apparatus. This is not surprising when we reflect that infection is the most frequent complication of childbirth. The puerperal state, in fact, offers an enormously increased surface for the absorption of the infectious material. In most instances the insane women presented evidences of puerperal metritis.

Of the 22 patients with inflammatory lesions, 11 were treated by means of uterine dressings, and of these, 10 were cured not only physically but mentally. The results obtained by Verhaege are similar to those recorded by others. Thus, for example, Hobbs, who treated 80 patients, obtained physical cures in almost every instance, while in 45 per cent. the mental condition was cured, in 25 per cent. it was improved, and in 30 per cent. it remained stationary. Picqué obtained nine cures in twelve patients of this type. On the other hand, patients whose uterine disease had not been treated locally recovered their mental health in a much smaller proportion of cases. The conclusion drawn from these facts was that a gynecologic examination should be employed in every case of

insanity in women, and that, when the local condition is curable, treatment applied to the generative organs will produce a very favorable effect upon the mental condition of the patient.—*La Tribune Médicale*.

HERPES ZOSTER DUE TO ARSENIC. B. Solger (*Dermatologisches Centralblatt*, Vol. 10, 1907) reports the case of a man aged 34, of robust constitution, who had been taking arsenic for a long time for a rebellious chronic eczema. When digestive disturbances and conjunctivitis developed, the arsenic was stopped, but an eruption of herpes zoster appeared upon the left side of the body, and then also upon the right side, though less markedly. The case was interesting because a bilateral herpes, involving regions supplied by totally different peripheral nerves is rare. The author attributes this zoster to a neuritis, due to the administration of arsenic which acts upon the trophic ganglia. The possibility of herpes as a result of arsenical poisoning should be borne in mind.

A STUDY OF THE PIGMENT OF THE SKIN. Meirowski (*Monatshefte fuer Praktische Dermatologie*, 1907, Vol. 43, page 155) examined small fragments of skin, excised after having been exposed for different lengths of time to Finsen light. His experiments showed that the pigment in the epidermis was formed by the nucleoli. The latter increased in size under the influence of the light, emerged from the nucleoli into the protoplasm and split up into fine granulations which traveled toward the periphery of the cell. When the epidermis had been exposed for a long time, the pigment was found only at the pole of the cell which faced the light, thus apparently showing that the pigment was attracted by the light, or that the light produced a current in the plasma which carried the pigment towards the source of light. Most authors claim that atrophic scars of the epidermis do not form any pigment. In order to demonstrate that this is not so, Meirowski exposed a pale scar in a brunette patient to Finsen light for an hour and a half. The scar had become slightly brown and was excised. In the derma, not a trace of pigment was found, but in the epidermis, there was a dark pigment, not only in the lower layers, but even in the

superficial cells. The pigment of the derma is formed from the coloring matter of the blood under the influence of light. The pigment of the epidermis is much lighter and less constant than the pigment of the derma.

SUPPURATIVE CONDITIONS OF THE KIDNEY IN PREGNANCY. Barth (*Centralblatt für Chirurgie*, 1907, page 524) reported five cases of suppurative conditions of the kidney in pregnant women, in whom nephrotomy or catheterization of the ureters led to the demonstration of these conditions. The right kidney is usually affected and the affection begins as a pyelitis. In such cases, it is sufficient to catheterize the ureter in order to avoid a further spread of the infection. The colon bacillus, together with other germs, has been found in several cases as the infectious cause. In one case, catheterizing the ureters induced a premature labor, which shows that this procedure is not always safe during pregnancy. Nephrotomy is a safe operation in pregnancy and gave good results in these cases.

THE INJECTION OF OXYGEN INTO THE BLADDER FOR CYSTOSCOPY OR RADIOGRAPHY. L. Burkhardt and O. Polano (*Centralblatt für Chirurgie*, page 334) recommend the use of oxygen for filling the bladder when it is impossible, for some reason, to introduce fluid into that organ or when there is so much pus and blood that the fluid becomes clouded quickly. With oxygen the bladder can be filled painlessly, and the cystoscope can be used with ease. If the oxygen is not introduced rapidly or under pressure, there is no danger of embolism or rupture of the bladder. Remarkably clear and well defined radiographs of the bladder can be taken when that organ is filled with oxygen.

REFLEX SCOLIOSIS DUE TO MOVABLE KIDNEY. Dieulafoy (*Société de Chirurgie*, March 13, 1907) saw a case of scoliosis in a young woman with floating kidney complicated by intermittent hydronephrosis. Nephropexy was performed and the lateral curvature of the spine disappeared. The woman was 25 years of age and had had two children. She complained frequently of severe pains in the loin, and on examination presented a marked deviation of the spine, which could not be relieved by bandaging. The curvature

of the spine was so marked that in operating the lumbar incision had to be made more oblique than usual. Twenty days after the nephropexy, the patient was able to walk about and her spine had become perfectly straight. Six months after the operation, the kidney had remained well fixed and there was only very slight pain in the abdomen, due to the formation of gas.

THE TREATMENT OF CYSTITIS IN PROSTATICS, BY MEANS OF JANET IRRIGATIONS. Delbet (*Annales des Maladies des Organes génito-urinaires*, October 1, 1907) says that the classical treatment of cystitis in prostatic hypertrophy, by irrigating the bladder through a catheter, does not give satisfactory results. There is always some prostatitis in these cases besides prostatic hypertrophy and mere stagnation of urine. In most prostatics, the urine is cloudy long before there are symptoms of cystitis, and this is probably due to the backward flow of purulent secretion from the prostatic urethra into the bladder, as the result of the urethroprostatitis which accompanies the hypertrophy. If this pathological reasoning be correct, the treatment of the cystitis of prostatics by irrigations through catheter, cannot cure because the catheter simply soils the bladder again and again by introducing septic material from the prostatic urethra. A better method is that of instillations of silver nitrate, which deposits silver solution not only into the bladder but also in the prostatic urethra. But the instillation treatment is painful and troublesome, and a simpler method can be used, which treats at the same time the urethra, the prostate and the bladder. For this purpose the best method is the use of irrigations of the urethra and bladder by the Janet method without any catheter. For this purpose solutions of permanganate (1:5000) of sublimate (1:20,000) or better of mercury oxycanidei (1:1000), or of physiological salt solution, have given excellent results in the author's hands. A great advantage of this method is that the fluid introduced under pressure flushes out the retroprostatic pouch where the residual urine lies stagnant and keeps this important region clean. Of course, this method is only applicable to patients with incomplete retention of urine.

THE TREATMENT OF URETHRITIS BY IONISATION.

Dr. Mélun (*Annales des maladies des organes génito-urinaires*, November 15, 1907), applied a process of ionisation of silver solutions in cases of urethritis. Ionisation was recommended by Professor Stephen Leduc, the discoverer of the co-called electric sleep. The technique employed by Mélun was as follows: A straight sound, made of hard rubber, 25 centimetres in length, No. 18 French, with a slight Béniqué curve, was used as the carrier. Beginning at the end of the sound and reaching almost to the handle were a number of small openings which communicated with the interior of the sound. In its lumen was a silver thread, the end of which passed through the sound at one side and ended in a binding-post which could be connected with a galvanic battery. The handle of the sound was provided with a stop-cock. The sound was introduced in such a way that the urethra covered the entire portion of it that was provided with openings. The meatus was compressed around the sound and the stop-cock was opened. With the aid of a small syringe which was attached to the stop-cock an average of 10 c.c. of a solution of from 1 to 2% of silver nitrate were injected into the sound. The solution passed through the little openings into the urethral canal and distended the latter, placing at the same time in communication the silver thread within the sound with the mucosa, through the medium of the solution. The stop-cock was closed, and the galvanic current was turned on. The positive pole of a galvanic battery, with a perfect galvanometer was attached to the end of the silver thread where the latter issued from the sound, while the negative pole was placed upon any part of the patient's body. The current was increased very slowly and as high as 30 or 40 milliamperes could be reached without either giving shocks or producing pain. The treatment lasted from 15 to 30 minutes. The galvanic current acts upon the silver nitrate solution, decomposing the silver compound and allowing the silver *ions* to penetrate into the tissues and glands of the mucosa. This is something which cannot be obtained with any other method of treatment. The author reports three cases successfully treated by

"ionisation," and concludes that this method is of value in chronic cases of urethritis which have proved rebellious to every other form of treatment.

UNUSUALLY LARGE STONE IN THE KIDNEY REMOVED BY NEPHROLITHOTOMY. Dr. Burgos, of Eao Paolo, Brazil (*Annales des maladies des organes génito-urinaires*, November 15, 1907) removed what he claims to be one of the largest stones ever found in a kidney. The patient was a woman, aged 57, who had had some pains in the abdomen and some pus in the urine in 1901. In 1907, she complained of pain on her left side and a well defined tumor was found under the ribs. There had never been any hematuria. The diagnosis was, pyonephrosis with stone in the right kidney.

The stone weighed 155 grammes, and was 12 centimetres long, $13\frac{1}{2}$ centimetres in diameter, and irregular in shape. A large stone removed by Cathelin weighed 52 grammes and measured 9 by 5 centimetres. Unfortunately, the patient in the present case died four hours after the operation, possibly as the result of a large goitre, from which she was also suffering.

PROSTATITIS IN DIABETICS. Hamonic (*Comptes Rendus de l'Association Française d'Urologie* called attention to the frequency of prostatitis in certain classes of diabetic patients. He observed two cases, in which the prostate had been infected through the urethra as the result of a chronic balano-posthitis. The subpreputial inflammation was the starting-point of the prostatitis. The pus contained in one instance the *Staphylococcus pyogenes*. The diabetic patient is very frequently exposed to prostatic infections, because of the frequency of inflammations which develop about the prepuce and glans penis and in the urethra, and because of the tendency of diabetic tissue to become inflamed. Hamonic points out that the prostatic tissue in the course of diabetes becomes friable, as witnessed by the facility with which the finger in the rectum can plunge into the tissue of the gland itself.

THE ETIOLOGY OF PROSTATITIS AND PROSTATIC ABSCESS. Dr. Motz, in speaking on this subject before the re-

cent convention of the French Urological Association (*Comptes Rendus de l'Association Française d'Urologie*, 11th Session, 1907) points out that the existence of a prostatitis of intestinal origin has never been demonstrated. The fact that cancer of the rectum so rarely occurs as a complication of cancer of the prostate speaks in favor of the absence of any communication between the lymphatics of the rectum and those of the prostate. There is no such thing as an aseptic prostatitis. A careful and complete bacteriologic examination will reveal some germs in every case. Prostatitis occurs very frequently in patients with enlarged prostate. Of fifty cases of hypertrophied prostate, Goldschmidt and Motz have found prostatitis in forty instances. In eighty cases of hypertrophied prostate in Guyon's collection, these authors have found nine instances of large prostatic abscess and four cases of periprostatitis. These abscesses in prostatic hypertrophy were found usually between the masses of new growth and the prostate proper, which was pushed away towards the periphery.

ORTHOSTATIC ALBUMINURIA IN NEPHRITIS. Engel (*Münch. Med. Wochenschrift*, No. 45, November 5, 1907) reported three cases of chronic parenchymatous nephritis in which he observed a typical orthostatic albuminuria. The albumin would disappear completely whenever the patient maintained a horizontal position. The three patients were quite young, ranging from 7 to 20 years of age. Two of them had had attacks of scarlatina two years previously; the third had had an attack of influenza. The nephritis in all three cases could be traced to the infectious disease. In all three cases there were casts in the urine and in two of them there was marked cardiac hypertrophy. The amount of albumin in the urine in 24 hours did not exceed, in any of the three cases, one or two parts per thousand. Orthostatic albuminuria has never been observed, except in the rarest instances, in the chronic nephritis of adults. Thus, Engel was unable to find a single case of orthostatic albuminuria in 70 adult cases of chronic nephritis. The difference between youth and adult age in this respect probably depends upon the fact that the young renal cells, like all young cells,

possess greater powers of recuperation and that, given the favorable conditions created by rest in bed, these renal cells regain their normal functional capacity unless they have been too greatly damaged. The prognosis of chronic nephritis in young persons, in whom there is an orthostatic albuminuria is more favorable than that of other cases of chronic nephritis. Two of Engel's patients recovered completely.

THE MORNING DROP AND STRICTURES OF LARGE CALIBRE. Henry Reynes of Marseilles (*Comptes Rendus de l'Association Française d'Urologie*, October, 1907) discusses the relation of strictures of large calibre to the persistent morning drop. This relation is not generally recognized by the medical profession. The "goutte militaire," or morning drop, is a secretion derived from a patch of chronic urethritis, with a tendency to granulation and the formation of cicatricial tissue. In every case, therefore, in which there is a persistent morning drop, it is our duty to examine the canal with aid of a bougie à boule. The best treatment for these cases is the use of instillations, but especially, the use of dilators, such as those of Kollmann, Oberlander, etc., which dilate the stricture and at the same time treat the urethritis.

THE ABORTIVE TREATMENT OF ACUTE GONORRHOEA BY EARLY AND REPEATED INJECTIONS.

Carle (*La Clinique*, August 9, 1907) pleads for the more popular acceptance of the abortive method of treatment in acute gonorrhoea. He claims that by his method the discharge is reduced to a morning drop within five days, and within fifteen days no symptoms of the disease can be detected. The treatment should be begun within forty-eight hours after the appearance of the discharge, by injecting a solution of potassium permanganate containing 0.2 gram per liter. This is injected by means of a syringe, holding about 15 cc., and four or five injections should be made consecutively and retained for a few seconds each time. Three hours later, a second treatment, exactly like the first, is given. At this time, the irritation being somewhat lessened,

the patient may himself attempt the treatment. He should be taught how to do so. He should first urinate, and then inject into the canal the entire contents of a syringe holding from 8 to 10 cc. The meatus should be compressed so as not to lose any fluid, and the first injections should be retained for thirty seconds; later ones for from one to two minutes. This is repeated as often as six times in succession until slight irritation is felt. A third treatment of the same kind is taken by the patient three hours later. It is repeated twice on the following day, in the office of the attending physician, and twice by the patient himself at his home. Four such treatments are given daily, at intervals of four hours, until the sixth day. From the sixth to the tenth day, three series of injections are given daily, and for two or three days after that, two series daily. Then only one treatment is given each morning. In favorable cases the acute phenomena disappear within forty-eight hours. Urination becomes easy, local congestion diminishes, and pain is scarcely felt. After the fifth day the discharge is reduced to a morning drop. In unfavorable cases, when the treatment has failed, we see a large drop of discharge at the meatus three hours after urinating. In such cases, we may continue the treatment, but cure cannot be expected in less than six weeks. The treatment is not only useless, but dangerous, when frequency of urination, swelling of the meatus, and pain are the results of its application. In such cases, sitz baths, alkalies internally, and copaiba are indicated. If all goes well, the morning drop disappears after the tenth day and the treatment can be gradually diminished in frequency and suspended on the fifteenth day. The patient should refrain from sexual intercourse for some time afterwards. In applying this treatment, the solution should never be stronger than 20 centigrams per liter; the injections should be made only in the anterior urethra, and should be repeated with the frequency indicated above. The treatment should be persisted in until the fifteenth day, in spite of the good effects which appear early. No internal medicines are needed, but the patient should avoid fatigue and drink very little fluids.

ACCIDENTS IN CATHETERIZATION.—Franz Kirchberg, of

Berlin, in an article on the medico-legal aspects of errors made by surgeons and accidents in operating, mentions some cases which interest the urologist. (*Aertzlicher Sachverständigen Zeitung*, Nos. 19, 20 and 22, 1907.) The first case concerns the breaking of a soft rubber catheter. In catheterizing a man aged 70 years, with a soft rubber catheter, which had been used several times, the physician noted that the instrument had been broken in withdrawing it and that a piece of the catheter, about 10 cm. long, had remained in the bladder. A suprapubic cystotomy had to be performed. The physician was sued for malpractice, and the case was compromised by a payment of 1700 marks. Later, a cystitis developed, either as the result of the operation, or it was alleged, owing to the irritation and infection caused by the catheter, and further damages, amounting together to about 3,000 marks, were paid by the physician.

In the second case, a bit of catheter had been broken off and had remained in the bladder. This was a new catheter, yet was friable when examined. The piece of catheter had to be removed by an operation, and a fistula remained for a long time, which finally healed. The physician paid the expenses of the patient in the hospital, and an insurance company paid the 500 marks damages. The physician should have examined the catheter before introducing it and made sure that it was safe and sound.

In the third case, the patient alleged that a catheter had been broken while catheterizing him. He had been treated for retention of urine with both soft and metal catheters. Six months later, he showed a foreign body in his bladder on cystoscopic examination, and the object was removed by operation. The foreign body was 6 cm. in length and resembled a piece of soft catheter. The patient claimed that this had been broken off through the negligence of the physician and demanded the payment of expenses and a 1,000 marks damages. On microscopic examination it was found that the object in his bladder was not a piece of catheter, but that it was a piece of cord or thread which had been introduced into the bladder, probably in an act of masturbation.

THE TREATMENT OF STRICTURES WITH FIBROLYSIN.—

Felix Mendel (*Berliner Klinik*, October, 1907), in speaking of the value of fibrolysin in cicatrical conditions, mentions its use in strictures, and claims to have found it of value in certain cases. Schourp used fibrolysin subcutaneously in 1906 in the treatment of strictures. Frank, in the same year, reported brilliant results in a series of cases of severe stricture, in which he administered fibrolysin intravenously. He also used the remedy in adhesions of the bladder, etc. Luth, in 1907, used the remedy intramuscularly for parenchymatous prostatitis after gonorrhea. Waelsch employed it with good results in plastic induration of the penis, an affection which has hitherto been regarded as incurable. The patient was a physician, aged 31, who suffered from a painful kinking of the penis during erections, owing to the presence of fibrous degeneration of the corpus cavernosum. As he was engaged to be married, this trouble made him so melancholy that he contemplated suicide. A complete cure was obtained by a six months' course of treatment with intramuscular injections of fibrolysin. Mendel reports brilliant results in a case which was unique, in that it presented an induration of the penis, as well as a Dupuytren's contracture of the hand. He considers fibrolysin useful also in causing the absorption of indurations in the epididymis, although it is useless in the treatment of hard, tuberculous infiltrates. The best way to administer fibrolysin is intramuscularly.

THE MEDICINAL AND LOCAL TREATMENT OF GONORRHEAL RHEUMATISM.—Treupel, of Frankfort-on-the-Main (*Munchener Med. Wochschrft*, No. 39, 1907) investigated the effects of salicylates upon the kidneys. He believes that the injurious action of the salicylates upon the kidneys has been exaggerated. He found renal elements in the urine in normal individuals when they were suffering from febrile rheumatic affections even when they were not taking salicylates. The desquamative catarrh may also be produced by the administration of salicylates, but it disappears under prolonged use of the remedy. As regards the treatment of gonorrheal rheumatism the best remedies are Bier's hyperemia,

hot air, and later massage and baths. The treatment requires much patience and perseverance, but is almost always successful.

A NEW METHOD OF URETHROSCOPY.—H. Goldschmidt, of Berlin, (*Zeitschrift für Urologie*, January, 1908) describes his new method of urethroscopy. He finds that the old method has not become popular, and is practically of value only in the diagnosis and treatment of postgonorrheal changes in the anterior urethra. Goldschmidt's method consists in dilating the urethra in its entire extent by means of water pressure. The instrument, by means of which this is done, carries an electric lamp and allows us to inspect the illuminated and dilated urethra through a proper optical apparatus. In this manner, we can observe considerable areas of the urethra at the same time, and can apply the principles of cystoscopy to the narrow canal. Posner, in a recent article on neurotic impotence, expressed the hope that with a new method of urethroscopy, we may be able to detect local changes in the colliculus seminalis, and thus show that organic changes are at the basis of the trouble and can be treated by local measures. Goldschmidt holds the same view. He found with his new method of urethroscopy that changes in and about the colliculus seminalis are not only responsible for the so-called nervous impotence, but for the majority of those disturbances which we are accustomed to group under the term sexual neurasthenia. With Goldschmidt's method we are able to see distinctly every detail of the lining of the posterior urethra, and can determine the presence of increased reflex irritability of the colliculus seminalis, which is sometimes so marked that the slightest touch of the instrument provokes an ejaculation. By pressing upon the prostate while the instrument is in the posterior urethra, we are able to observe the purulent secretion oozing from the fine ducts in cases of prostatitis. In many cases of posterior urethritis, we find marked changes in the mucosa, especially polypoid growths. With the new method, we are also able to study closely the changes in the hypertrophied prostate, and to determine in many cases the causes of frequency

of urination. Goldschmidt has also perfected an operating urethroscope which enables the surgeon to perform operations and to treat the posterior urethra through the new instrument under the control of the eye. Granulations and polypi can be removed by a small curette and the galvanocautery can be applied through the urethroscope.

THE ABORTIVE TREATMENT OF GONORRHEA.—Victor Lion (*Archiv für Dermatologie und Syphilis*, 1907, Nos. 1, 2, and 3) says that there are two principal objections to the abortive treatment. In the first place, the number of cases which can be treated by this method is very small. In the second place, this method is apt to produce irritations and to give rise to complications. Lion has often found that after injections of 4 per cent. protargol for abortive purposes, there were complications, such as epididymitis, etc. Even the prophylactic injections of concentrated solutions sometimes produce catarrhal inflammations which simulate gonorrhea. Lion recommends for the abortive treatment solutions of much milder strength. He employs lavages by the method of Janet. These irrigations unfold the urethral mucosa and destroy the gonococci in the superficial layers of the membrane. He employs a solution of three-quarters of one per cent. protargol.

In order to offer the proper conditions for a successful abortive treatment of gonorrhea, the infection must be quite recent, preferably within 24 hours after the onset. Cases in which the period of incubation is of long duration do not lend themselves to abortive treatment. The discharge in favorable cases should be slight, serous or mucopurulent, and there should be no complications and no posterior urethritis. In the cases treated by Lion, the gonococci disappeared always on the second or third day. All the patients treated had their first attack of gonorrhea. The process was aborted in 17 out of 25 cases. The cause for the failure of the treatment in some cases was the fact that the gonococci had already penetrated too deeply to be reached by the irrigations. The secret of success with abortive treatment is the selection of cases. The abortive method cannot be harmful when the irrigations are performed with a weak solution.

Even if it does not succeed it shortens markedly the duration of the disease. It is important to urge patients to come for treatment at the very first sign of the trouble.

A CASE OF GONORRHEAL OTITIS.—Dr. Reinhard reports a case in an infant twenty-four days old. The child had blennorrhea neonatorum and also a severe purulent discharge from the right ear. The discharge showed gonococci both microscopically and in culture. The nose and pharynx were free. Treatment with dry powders had no effect, but irrigations with a 1:5000 potassium permanganate solution, followed by instillations of a 1 per cent. protargol solution, brought about a complete cure in a few days.

THE TREATMENT OF GONORRHEA AND ITS COMPLICATIONS BY ELECTRICITY.—Dr. Suquet, of Nîmes, (*Revue Pratique des Maladies des Organes génito-urinaires*, January 1, 1908), has used electricity in the treatment of certain cases of gonorrhea in which other means of treatment have proved inefficient. He emphasizes the fact that electricity in his cases is employed as a last resort. The usual methods of treatment are of comparatively slight antiseptic and bactericidal value. The galvanic current, however, may be employed either directly or through the medium of a medicinal substance which penetrates the mucosa, for the purpose of destroying germs. In acute urethritis electricity is not applicable. But after the acute period is over, say ten days or fifteen days after the onset, and if the discharge still persists, the author applies the galvanic current, employing a Beniqué sound of zinc as an electrode. In this manner, he uses the electric ionization method, just as Leduc does in metritis. The zinc *ion*, according to Leduc, is a strong antiseptic, and the electric current allows it to penetrate through the mucosa to any desired depth. The method employed by Suquet is as follows: The urethra is first cleansed with a solution of sulphate of zinc, five parts in a thousand. A Beniqué sound of zinc, No. 40 (?) French is then introduced. The indifferent negative pole having been placed upon the abdomen, the positive pole is connected with the sound. The zinc being a *kation*, that is, tending to move towards the negative electrode, it must be placed upon the positive pole, in order

to secure deep penetration of the metal. In order to avoid injurious effects of the positive pole upon the urethra, as for example the formation of strictures, a current of from eight to ten milliamperes is used first for 8 to 10 minutes with the sound at the positive pole, then the current is shut off and is reversed, the treatment being terminated by an application of 15 milliamperes for five minutes with the zinc sound at the negative pole.

The treatment is but slightly painful, but a few hours afterwards, a colorless discharge, which is quite abundant, appears. The penis swells slightly and the patient complains of lancinating pains. If the reaction is too violent, the author applies on the same evening, and on the following day the high-frequency current, which causes the inflammatory symptoms to disappear rapidly. Within from three to four days after the ionization treatment with zinc sound, the discharge disappears completely, not even a morning drop being present, but shreds are found in the urine, and the discharge reappears within a week, unless the treatment be continued. In order to avoid a relapse, four or five treatments at intervals of eight days are usually necessary. If a morning drop persists, the discharge must come from some other place than the urethra, as for example, the bladder, the prostate or the vesicles. For the infection of the prostate and vesicles, the author uses the high-frequency current with Doumer's electrode, regulating his resonator in such a way that the current can be used for five minutes without heating the electrode too much.

In chronic cases, the technique is slightly different. Irrigations are stopped and the cause of the chronicity, which is always either a stricture or a prostatitis and vesiculitis, is attacked. Strictures of large calibre are treated by means of an olivary electrode made of zinc, copper or silver. These electrodes are made the negative poles and when the stricture has been passed, the current is reversed and the positive pole is allowed to work upon the parts of the canal behind the stricture. Before the séance is terminated, he returns once more to the negative pole, reversing his current, so as to counteract the effect of the positive pole, which might

leave a hard cicatrix. After five or six treatments, at intervals from ten to twelve days, the canal returns to its normal size and the discharge disappears completely. To make sure that the cure is permanent, the author uses systematic applications of high-frequency currents through the rectum, even when there are no symptoms of prostatitis.

Galvanization and high-frequency currents offer the most rapid methods of treating gonorrheal rheumatism. High-frequency currents are excellent in acute orchitis and galvanism in chronic orchitis. The X-rays are efficient in suppurating gonorrheal buboes, as well as in bubo following soft chancre, two or three applications being sufficient to effect a cure.

POLYPI OF THE URETHRA IN WOMEN. Nogues, of Paris (*Comptes Rendus de l'Association Française d'Urologie*, October, 1907) in speaking of polypi of the urethra in women, emphasized the fact that the best treatment for this condition was their destruction with the aid of the thermo-cautery. These little tumors often give no symptoms whatever and are discovered only with the urethroscope. He has found that these polypi are implanted close to the urethral orifice, in fact, that they are practically a part of this orifice. They vary in anatomical character, assuming the type of adenomas, papillomas, angiomas, etc. The polyps which he examined all contained some inflammatory tissue, with numerous vessels, with rather thickened walls, many polynuclear leukocytes and giant cells. In some cases, however, they had the structure of papillomas.

BOOK NOTICES

SYPHILIS.—A treatise for practitioners. By EDWARD L. KEYES, JR., A. B., M. D., Ph.D., clinical professor of genito-urinary surgery, New York Polyclinic Medical School and Hospital; lecturer on surgery, Cornell University Medical School; surgeon to St. Vincent's Hospital. With sixty-nine illustrations in the text and nine plates, seven of which are colored. New York and London: D. Appleton & Company, 1908. \$5.00.

Dr. Keyes has produced a delightful volume, if the adjective delightful may be used in connection with such a non-delightful, albeit profitable, disease as *lues venerea*. It is clear, concise, readable from beginning to end, free from abstruse semi-digested theories and fanciful guesses, devoid of even a trace of sciolism, and saturated with common sense through and through. The treatment outlined meets with our fullest approval, and will commend itself to all thoughtful and conservative syphilographers who treat living human beings and not names of diseases or lesions. We are sorry not to find pilocarpine mentioned as one of the adjuvants in the treatment of syphilis.

There is one little point on which we would take issue with Dr. Keyes. In speaking of the Prophylaxis of Syphilis (page 6) he says: "Individual prophylaxis is futile. As long as men indulge in illicit sexual intercourse, so long will syphilis exist. There is no preventing it." We differ on this point. We believe that with proper precautions all danger of infection may be eliminated, or reduced to a negligible quantity. In fact, not only we, but Dr. Keyes himself disagrees with Dr. Keyes, for three pages further (page 9) the author says: "The incidence of syphilis is highest in the English army (75 per mille per annum). Then follow the United States (33.98), Austria (19.2), Russia (12.8), France (6.7), Holland (4.9), Bavaria (4.3), Prussia (4.0). The prudish Anglo-Saxon refusal to countenance protective measures for the health of the army here shows its results." If proper individual prophylaxis can reduce the incidence of a terrible disease from 75 to 4 per 1000, then it is certainly *not* futile. And if the reduction has been from 75 to 4, why can we not hope that the last figure will be changed to 0 in the near future? No, individual prophylaxis is not futile. It is very important. And cruel as the statement may appear, it is nevertheless our opinion that individual prophylaxis will in time do more towards the abolition of syphilis and gonorrhea than all our preaching and all earnestly passed resolutions that absolute continence is not only feasible, but is good, healthy, and altogether delightful.

We will end as we began: Dr. Keyes has produced a delightful volume, and he is to be congratulated on it.

TEXT BOOK ON DISEASES OF THE SKIN.—By ARTHUR VAN HARLINGEN, Ph.B., M. D., emeritus professor of Dermatology in the Philadelphia Polyclinic. Fourth edition, thoroughly revised and rearranged with 102 illustrations. P. Blakiston's Son & Co., Philadelphia. 482 pages. Cloth.

Those familiar with Van Harlingen's text book in its third edition would hardly recognize it in its fourth. It has been thoroughly rearranged and rewritten. In the last edition the arrangement of the diseases was alphabetical; in this edition the conventional modified Hebraic classification has been adopted. The descriptions of the diseases are very good, the illustrations are moderately so, the treatment is not as complete as might be desired. Thus in lupus erythematosus we fail to find mention of Hollander's Method—large doses of quinine internally and tincture of iodine externally—and in the treatment of ringworm and favus no allusion is made to the Roentgen rays. To one who has seen the remarkable results with the X-rays in Sabourand's famous "ringworm clinic" in Paris, and the quick work in favus in the Roentgen Institute in Vienna—many cases are radically cured by *one* exposure—the omission seems to be somewhat strange. Still these are not major points and Van Harlingen's remains one of the best of the smaller text-books on diseases of the skin.

A TREATISE ON DISEASES OF THE SKIN.—For the use of advanced students and practitioners. By HENRY W. STELWAGON, M. D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Fifth Edition, revised. Octavo of 1150 pages, with 267 text-illustrations, and 34 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$6.00 net; half morocco, \$7.50 net.

This is one of the most pretentious of American text-books on diseases of the skin, and is in our opinion the best and most complete of all. The present edition, which is in reality a new edition and not merely a reprint, has been thoroughly revised and the latest facts concerning the common and uncommon—particularly tropical—diseases of the skin have been incorporated. The illustrations and plates, colored and half tone, are particularly excellent, as they should be in a treatise on skin diseases, for a bad dermatologic illustration is worse than none at all.

CUTANEOUS THERAPEUTICS.—Including sections on the X-ray, high-frequency currents, and the minor surgery of the skin. For the use of general practitioners. By W. A. HARDAWAY, M. D., LL. D., professor of diseases of the skin and syphilis in Washington University, St. Louis, and JOSEPH GRINDON, Ph.B., M. D., professor of clinical dermatology and syphilis in Washington University, St. Louis. Lea Brothers & Co., Philadelphia and New York, 1907. \$2.75 net.

While this volume is called a handbook on cutaneous therapeutics, it also contains a description of each disease with etiology, prognosis, etc. In fact, it is a complete condensed text-book of skin diseases, and as such it will answer admirably the needs of the general practitioner for whom it is intended.

On February 18 there was organized a Section on Urology of the St. Louis Medical Society, with the following officers: Bransford Lewis, Chairman; E. A. Scharff, Vice Chairman; H. N. Lyon, Sec'y-Treas.; O. L. Suggett, Editor.

THE AMERICAN JOURNAL OF UROLOGY

VOL. IV.

APRIL, 1908.

No. 4

THE URETER IN FUSED (HORSE-SHOE) KIDNEY.

BASED ON THE STUDY OF 60 SPECIMENS AND
ILLUSTRATIONS.

BYRON ROBINSON, B. S., M. D., Chicago.

The following plan of ureteral division will be assumed:

Ureters in fused (horse-shoe) kidney.	{	I. Ureter proprius..	{	1. Number	{	a, length
				2. Symmetry		b diameter
				3. Location		c, constrictions
		II. Pelvis ureteris ..	{	5. Dimension	{	(isthmuses)
		III. Calyces ureteris .		4. Form.....		d, dilatations
						(spindles)

6, Course of ureter proper.

6, A, Ureteral crossings.

6, B, Ureteral vesical termination.

I. URETER PROPER—(*ureter proprius*).

In fused (horse-shoe) kidney the ureter proper extends, in general, from the proximal ureteral isthmus to the distal ureteral or vesical orifice. The ureter proper in fused (horse-shoe) kidney may be irregular, uncertain in 1, number; 2, symmetry; 3, location; 4, form (isthmus and dilatation); 5, dimension; 6, course.

1, *Number of ureters (Proper)*.

In 60 subjects afflicted with fused (horse-shoe) kidney 93% possessed bilateral ureteral unicity. 3 $\frac{1}{3}$ % possessed bilateral ureteral duplicity (see figures 3, 6). 3 $\frac{1}{3}$ % possessed central ureteral unicity (see figures 16, 59). In the 59 subjects of fused kidney there was no case of unilateral ureteral duplicity. When ureteral duplicity existed it was

bilateral. It appears that the horse-shoe kidney does not furnish unilateral ureteral duplicity as frequent as the abnormal kidneys, for I have observed 6% of unilateral ureteral duplicity in 100 consecutive autopsies. Fused kidney furnishes excessive ureteral unicity (see figures 16, 59).

2, *Symmetry.*

With regard to symmetry of the ureter proper in fused (horse-shoe) kidney the form, dimension, number and position of each of the 60 illustrations was studied and compared from which the following data arose, viz: (a), in 80% the form of the ureter possessed bilateral symmetry; (b), in 70% the dimensions of the ureter passed bilateral symmetry; (c), in 100% the number (56 subjects with bilateral ureteral unicity, 2 subjects with bilateral ureteral duplicity and 2 subjects with central ureteral unicity) of the ureter possessed bilateral and central symmetry; (d), in 30% the position of the ureter possessed bilateral symmetry.

3, *Location of ureter proper.*

Practically in 60 subjects the ureters in fused (horse-shoe) kidney are located in 90% on the ventral surface of 10% on the dorsal renal surface. In exact percentage of the location of the ureter (in 60 subjects) was: (a), ventral to renal surface in 80%; (b), dorsal to renal surface in 9% (figures 4, 5, 6, 17, 29); (c), externally lateral to the renal margin in 6% (39, 40, 45); (d), internally medial to the lateral mass in 2% (figure 4); (e), intraparenchymatous in 2% (figure 56). Some subjects are difficult of classification (as figures 4, 5, 6), on account of complexity of structure. From the malformed, congenitally dystopic renal mass in fused (horse-shoe) kidney, the location of the ureters is uncertain in course, as well as location at the proximal and distal terminations (see figures 4, 11, 16, 29, 45, 54, 55, 56).

(C) *In Renes arcuati distal.*—The proximal end of the ureter proper is located: (a) on the ventral or dorsal renal surface of the longitudinal lateral renal mass (figures 6, 29, 54); (b) intraparenchymatous (figure 56); (c) at the junction of the transverse renal isthmus (figure 4, 10, 41, 52, 57).

(D) *In Renes arcuati proximal*.—The proximal end of the ureter is located: (a) at the distal border of the proximal renal arch (figure 4); (b) at the medial margin of the longitudinal lateral renal mass (dorsally 17, ventrally 54).

(E) *In Renes compositæ central*.—All available specimens demonstrate that one or two ureters may originate from the ventral surface of the renal mass (see figures 12, 16, 59, 60). In fused kidney the ureter proper is anatomically distorted in position, course, and relations to renal vessels. In fused (horse-shoe) kidney, the location of the ureter may be distorted, flexed, compromised as to maximum function, renal vessels and diseased (see figures 6, 13 (calculus), 17, 28, 35, 42, 45).

4. *Form of ureter proper* { a, *ureteral isthmuses*.
b, *ureteral dilations*.

Practically in 80% of the 60 subjects with fused (horse-shoe) kidney the ureter proper possessed bilateral symmetry of form. Subsequent to the injection of over 200 ureters during the past 15 years (with liquid paraffin, red lead and starch, air, water) for the purpose of exposing the form of the ureter I became convinced that the ureter possesses practically 3 constant isthmuses (constrictions) and 3 constant dilations (spindles, reservoirs). The 3 practically constant ureteral isthmuses are located at the region of the distal renal pole, at the uretero-iliac crossing and at the passage of the ureter through the vesical wall or the uretero-vesical segment. The ureteral dilations (spindles) are developed from the isthmial obstructions due to mechanical causes, erect attitude. Ureteral dilations are located in the pelvis and calyces, in lumbar region (lumbar spindle) and in the lesser pelvis (ureteral spindles). These three ureteral constrictions assume the characteristics of practically constant three ureteral isthmuses" (see Dr. T. B. Wood in the *Medical Age*, June 10, 1906). The ureter in fused (horse-shoe) kidney assumes the characteristics of practically constant three ureteral isthmuses. The form of the fused (horse-shoe) kidney ureter may, but in general does not share in the renal mass malformation. It may not present the typical ureteral isthmuses and dilations of the normal ureter. One of the

isthmuses (especially the proximal) is liable to be limited, compromised in lumen (it may be from abnormal ureteral flexion of vessels) (see figures 17, 25, 33, 34, 35, 42, 45, 46, 54). If the ureters be multiple they form—isthmuses and dilatations—is less typical than in the usual number of ureters. First, since the ureteral form depends on the flexion of the ureter by the distal normal renal pole at the normal location. The proximal ureteral isthmus is liable to be distorted in fused (horse-shoe) kidney, because of congenital renal dystopia. Second, since the ureteral form depends on the erect attitude, the ureter over the iliac vessels in fused (horse-shoe) kidney from congenital renal dystopia the iliac ureteral flexion may not possess an opportunity to occur or at least in a minor degree. Third, since the form of the ureter depends on the compression of the ureter by the vesical wall the distal ureteral isthmus is generally as usual, however, in congenital renal dystopia, there is liability of dislocation of the distal ureteral orifice—into the vagina, pudendum, rectum, intratrighonal or extra trighonal. In fused (horse-shoe) kidney or other malformed kidney the proximal or distal termination of the ureter is liable to dislocation with consequent malformation of the proximal or distal ureteral isthmuses. In fused (horse-shoe) kidney the middle ureteral isthmus is liable to inconstancy and uncertainty of form and location because the congenital dystopia distorts the course of the ureter at its usual crossing ventral to the vasa iliaca which is the cause of the ureteral flexion (isthmus). In ureteral central unicity (see figures 16, 59, 60) I was unable to study the form of the ureter proper on account of absence of most of the ureter.

5. *Dimensions of the ureter proper.*

In the subject of ureteral symmetry that of: (a), form; (b), dimension; (c), number, and (d), position, should be considered. (a), In 80% of 60 subjects afflicted with fused (horse-shoe) kidney the ureter proper possessed bilateral symmetry of *form*. The form of the ureter depends on the state or dimension of the ureteral isthmus, i. e., to the marked limitation of the ureteral lumen, constriction or isthmus at the distal renal pole, at the crossing of the vasa iliaca by the ureters and at the passage of the vesical wall. The more pro-

nounced the three ureteral isthmuses the more pronounced the ureteral spindles and hence more marked the ureteral form. From physiologic activity and mechanical obstructions the ureter of man (erect animals) has developed a definite form—viz., isthmuses and dilatations. (b), the *dimensions* of the ureter in general depends on the limited lumen of the three ureteral isthmuses which develop maximum dilatation of the ureteral spindle. Hence the smaller the ureteral isthmuses the larger the ureteral spindles and consequently the greater dimension in the ureter. In 70% of the 60 subjects afflicted with fused (horse-shoe) kidney the dimension of the ureter proper possessed bilateral symmetry. In the matter of ureteral dimension two subjects must be considered, viz.: 1, length and 2, lumen. (1), *Length*. In general the length of the ureter in fused kidney is less than the normal because the fused kidney is usually distalwardly located (see figures 16, 26, 29, 59). If the fused kidney be located in the lesser pelvis the ureters may be 2 to 3 inches in length only. In figure 29 the ureter was 5 inches in length. The ureter is usually of the greatest length in *renes arcuati proximal* (see figures 4, 17, 54). The more distalward the renal mass is located the lesser the ureteral length. Bilateral symmetry of the length of the ureter in fused (horse-shoe) kidney occurred in 53% of subjects. In 26% of subjects the left ureter was the longer. In 18% of subjects the right ureter was the greater in length. (2), *lumen or diameter*, in general, of the ureter in fused kidney is less than usual. In ureteral duplicity the diameter of the ureter is less than normal as it is in non-fused kidney. The absence of the ureter, general or partial, in many fused kidney precludes the report of exact data. In ureteral dimensions of fused (horse-shoe) kidney distortion of both length and lumen is a frequent occurrence.

6. *Course of the ureter proper.*

The course of the ureter must from mechanical necessity become changed in varying degrees from the normal course. The proximal ends of the ureters may be more distant or closer to each other than usual which will cause distortion in its course. One of the lateral renal masses may be more proximal or distal than the other or the dystopic renal mass

may be excessively rotated, torsioned. The position of the ureter in fused (horse-shoe) kidney (80% ventral, 9% dorsal, 6% externally lateral, 2% internally medial, 2% intraparenchymatous) would tend to distort the ureter in its usual course.

If the kidney is located in the pelvis (lesser) the course of the ureter is remarkably altered from the normal.

A Ureteral Crossing. In 1877 the late Dr. Karl Weigert in Virchow's Archive announced that in complete ureteral duplicity the ureters crossed each other chiefly in their distal portion. For a decade I have been collecting specimens of ureter duplicity from various museums. Ever and anon a specimen demonstrated that the ureters did not cross each other as Weigert claimed and I saw that his announcement was not a law. However, I was not in possession of sufficient material to demonstrate that Karl Weigert's ureteral crossings in the transverse frontal plane was a developmental or mechanical accident. Weigert's is incomplete and indefinite. In an excellent article in Virchow's Archive, Band 187, Heft 3 (1907) Dr. Robert Meyer of Berlin presents and confirms that Weigert's ureteral crossings was an erroneous observation. As Dr. Meyer has demonstrated by his material the ureteral crossings may be indefinite, incomplete. The proximal ureter may cross ventral or dorsal to the distal ureter or the ureteral crossings may not occur. In one side of bilateral ureteral duplicity the proximal ureter may be ventral and the other side dorsal to the distal ureter.

B. Distal or Vesical Termination of the Complete Duplicate Ureters. Weigert's announcement was not in vain. It led to investigations which demonstrated that in complete ureteral duplicity the proximal ureteral vesical orifice is located distalward and medianward to that of the distal ureter (see Byron Robinson "complete and partial ureteral duplicity," *Pediatrics*, Oct. 1904. Also *Medical Fortnightly*, March 10, 1904, "The distal termination of complete duplicate ureters"). It is of extreme interest in ureteral catheterization to know that in complete ureteral duplicity the trigonal orifice of the proximal ureter is located distalward and medianward to that of the distal ureter. I possess some dozen illustra-

tions drawn from specimens under my directions which demonstrate the above propositions as to the location of ureteral vesical orifices in complete ureteral duplicity.

II. URETERAL PELVIS (PELVIS URETERIS).

The pelvis ureteris extends from the proximal ureteral isthmus to the exit of the ureteral calyces. In fused (horse-shoe) kidney the ureteral pelvis is irregular, uncertain in *number, symmetry, location, form* (isthmuses and dilations). *Dimension* (length, diameter).

7. *Number of ureteral pelves*.—The number of ureteral pelves in fused (horse-shoe) kidney is uncertain, irregular. The number of ureteral pelves may be classified as follows: 1, central pelvic unicity (see fig. 4, 16). 2, bilateral pelvic duplicity (see figures 3, 6, 17, 25, 36, 55). 3, bilateral pelvic unicity (see general figures). 4,—mixed—unilateral pelvic duplicity and unilateral pelvic unicity, i. e., two pelves in one lateral renal mass and one pelvis in the other renal mass (see figures 23, 25, 42, 49, 53). In the 60 subjects of fused (horse-shoe) kidney the following data occurred, viz.: 1, 4% of subjects possessed central pelvic unicity (see figure 4, 16, 60). 2, 57% of subjects possessed bilateral pelvic unicity (see general figures as 18, 19, 26). 3, 30% of subjects possessed bilateral pelvic duplicity (see figures 3, 6, 9, 17, 25, 36, 55). 4, 8% of subjects possessed unilateral pelvic duplicity and unilateral pelvic unicity (see figures 23, 25, 42, 49, 53). In general over one half (57%) of the subjects of fused (horse-shoe) kidney possesses bilateral pelvic unicity (i. e., pelvis for each main, lateral renal mass). Less than 1-3 (30%) possesses bilateral pelvic duplicity (i. e., 2 pelves for each main lateral renal mass). About 1-12 (8%) possess unilateral pelvic unicity (i. e., one pelvis in the lateral mass and unilateral pelvic duplicity (i. e., 2 pelves in the lateral mass). 1/20 (5%) possessed central pelvic unicity (i. e., 1 pelvis in the center of the composite mass). Some latitude of judgment or personal equation must be allowed, accompanied by ultimate dissection, to decide the number of pelves in fused (horse-shoe) kidney.

8. *Bilateral symmetry of ureteral pelves*. Bilateral symmetry of the ureteral pelvis may be considered as to: (a),

form; (b), dimension; (c), number; (d), position. (a), In the 60 subjects afflicted with fused (horse-shoe) kidney 7% were found with bilateral symmetry of *form*. The form of the ureteral pelvis possesses extensive variation. (b), In the 60 subjects 10% were observed with bilateral symmetry of *dimension*. The dimension of the ureteral pelvis as to bilateral symmetry varies extensively between the minimum and maximum. (c), 92% of the ureteral pelvises presented bilateral symmetry as to *number*. (d), In the 60 subjects 30% possessed bilateral symmetry as to *position*. The estimation of bilateral pelvic symmetry should be considered as approximately accurate as the personal equation or latitude of judgment must prevail.

9. *Location of ureteral pelvises.* The location of the ureteral pelvis in fused (horse-shoe) kidney is uncertain, irregular. In 60 subjects of fused kidney the ureteral pelvis was located: (a), 80% on the ventral renal surface (see general figures 7, 11, 25, etc.). (b), 10% on the dorsal renal surface (figures 4, 5, 6, 17, 29). (c), 5% externally lateral to renal mass (figures 39, 40, 45). (d), 2% internally medial to renal mass (figure 4). (e), 2% intraparenchymatous (figure 56). For practical purposes the ureteral pelvis is located on the ventral renal surface in 90% of subjects and on the dorsal renal surface in 10% of subjects. Some specimens are difficult of classification as figures 56, 39, 40, and personal equation and judgment must be allowed. In fused (horse-shoe) kidney three forms with which to calculate the pelvic location, viz.:

(F.) *Renes arcuati distal.* Renes arcuati distal—distal renal poles fused—(see figures 25, 56). In general the pelvis is located: (a), On the ventral renal surface at the junction of the longitudinal transverse renal mass (see figures 18, 25, 33, 48); (b), on the dorsal renal surface at the junction of the longitudinal and transverse renal mass (see figures 3, 6, 29); (c), at the external lateral renal border (see figures 39, 40); (d), at the internal lateral renal border (figures 6, 18, 29, 42, 53). The location of the ureteral pelvic and calyces may be considered practically identical except that in most subjects the pelvis is situated more distalward than the calyces.

(G) *Renes arcuati proximal*—proximal renal poles fused—(see figures 4, 5, 17, 54). In general the location of the pelvis in the horse-shoe kidney with a proximal arch is medianward in the longitudinal renal mass because the renal isthmus maintains the proximal renal poles abnormally adjacent (figures 4, 5, 17, 54). The proximal renal masses may be so intimately adjacent that the bilateral ureteral pelves have blended in a single renal pelvis (figures 4, 60).

(H) *Renes compositæ central*—central renal portions fused—(see figures 12, 16, 44, 58, 59, 60).

The ureteral pelvis is located on the ventral renal surface in each of five subjects (84%) of *renes compositæ central*. One subject had the ureteral pelvis located on its dorsal surface. The location of the pelvis in fused kidney is like the fused kidney itself—anatomically distorted.

10. *Form of the ureteral pelvis.* The form of the ureteral pelvis in fused (horse-shoe) kidney possesses an extensive range of spindle shaped flattened irregular and frequently excessively deficient. In the 60 subjects no two intimately resemble each other and besides the same pelves on either side of the same fused kidney frequently differ materially from each other in form. The form of the ureteral pelvis concerns the surgeon in so far as it is intimately related to the renal parenchyma (see figure 54). The variation in form of the pelvis in fused kidney is so numerous that description is vain. However, one special form of ureteral pelvis is of interest—the elongated form (coalesced). The interest lies in the intimate relation of the elongated form to the renal parenchyma and renal vessels. The ureteral pelvis in fused kidney does not possess the pyramid or funnel form of the normal ureteral pelvis. The form of the pelvis in fused or horse-shoe kidney is liable to project in fissures or spaces of renal parenchyma. The form of the pelvis must be respected by the surgeon from its liability to incision wounds, due to its irregular projections. Also because wounds (fistula) of the ureteral pelvis does not heal so facile, so rapid as wounds of the calyces.

11. *Dimension of the ureteral pelvis.* The pelvis of the fused kidney varies remarkably in length and diameter. Its capacity may exceed or not equal the normal pelvis. In

general the 60 specimens present the view that the pelvis is less in dimension than that of the normal. The dimensions of the fused kidney for practical purposes should be calculated: (a), as length and (b), a diameter. Both dimensions vary extremely but the elongated pelvis (fig. 54) is of significant import in surgical procedures. Among the remarkable elongated pelves are those of figure 9, 54, 55. They are doubtless bilaterally duplicate pelves coalesced. Perhaps most of the remarkably elongated pelves in fused kidney are two coalesced, especially when the renal artery is duplicated to the renal mass with the elongated pelvis (figures 4, 9, 17, 23, 24, 25, 33, 42, 44, 53, 54, 56). These remarkably large, elongated pelves require attention in renal surgery. By locating some portion of such a pelvis while operating and injecting water into it by the aid of a syringe the distension will enable the physician to trace the location of the different parts of the pelvis. Among the pelves of remarkable limited diameters and consequently limited capacity are a considerable number in the 60 subjects (see figures 7, 8, 11, 16, 20, 34, 35, 41). The dimension of the proximal and distal pelves in bilateral ureteral pelvic duplicity, differ remarkably (see figures 3, 5, 6, 8, 9, 17-54, 55, 56). In figures 3 and 6 the proximal pelves possess the greater dimensions. In figure 4 the distal pelves appear to possess the greater dimension. In general in duplicity of pelves the proximal pelves are the lesser in dimension.

III. CALYCES IN FUSED (HORSE-SHOE) KIDNEY.

The calyces in (fused) horse-shoe kidney are uncertain, irregular in number, symmetry, location, form, dimension.

12. *Number of ureteral calyces.* The number of calyces in fused (horse-shoe) kidney is one of the most variable factors of the ureter as may be observed in the 60 illustrations. A calyx is a membranous tube with a cuplike expansion at its renal end to receive the renal papilla or cribrum benedictum. The calyx extends from the renal papilla to the ureteral pelvis. The calyx should be divided into two parts, the calyx or cuplike expansion and the stalk or pedicle. Of the 60 specimens and illustrations of fused (horse-shoe) kidney 18 only (from nondissected and imperfect illustrations) were avail-

able to determine the number of calyces in each lateral mass. There were 50% of calyces on the left and 43% on the right. This accords with the tendency of the larger renal mass in horse-shoe kidney to lie leftward and proximalward and also that the left renal mass in fused (horse-shoe) kidney is supplied by a larger volume of blood than the renal mass on the right. In those illustrations and specimens available for computation of the number of calyces the right lateral renal mass averaged 5 and the left renal mass averaged 6 calyces.

13. *Bilateral symmetry of ureteral calyces.* In the consideration of bilateral symmetry of the calyces in fused (horse-shoe) kidney there should be included that of form, dimension, number, position, distribution. As to bilateral symmetry of calicular *form*. I saw practically none. Neither could I find any examples of bilateral symmetry of calicular *dimensions*. The 60 illustrations presented bilateral symmetry of calicular *numbers* in 36%. In 60 illustrations the *position* of the calyces was bilaterally symmetrical in 15%.

14. *Location of ureteral calyces.* The location of calyces in fused (horse-shoe) kidney is uncertain, irregular. However, the calicular location is of significant import in renal surgery. The location of the calyces practically correspond with that of the pelvis except that the pelvis in general is located more distalward (figures 9, 23, 25, 32, 33). In fused kidney the location of the calyces are like the kidney anatomically distorted, flexed (figures 35, 55). The location of the renal end of the calyx is important as a calculus is liable to exist in it. In many subjects of horse-shoe kidney the calyces, unlike the normal, are located chiefly external to the kidney (see figures 8, 9, 25, 34, 43, 42). The location of the calyces must accord with the location of the main renal masses. For practical purposes in 90% of subjects the calyces are located on the ventral renal surface and 10% on the dorsal renal surface.

15. *The form of the ureteral calyces.* The form of the calyces presents the most extreme variation in the ureter of fused (horse-shoe) kidney. The chief variation in form is from excessive or deficient diameter of the calyx. The following figures represent the main calicular variation of form — (figures 4, 7, 8, 9, 10, 25, 28, 29, 34, 39, 40, 43, 49, 54,

55, 56). The form of the calyx like the form of the fused kidney is anatomically distorted. The calyx may be elongated with a constriction at uncertain localities—the constriction may be located at the calicular entrance into the ureteral pelvis at its attachment to the cribrum benedictum (renal papilla) or the calicular constriction may be located at any point of its stalk or pedicle. The calicular constrictions lend a striking form to the calyx and should the calyx be located practically external to the kidney it presents a memorable picture (see figures 8, 9, 25, 42, 43, 51, 54, 55). The cylindrical calyx may be in an extended curved or angular state.

16. *Dimension of the ureteral calyces.* The dimension of the calyces in fused (horse-shoe) kidney is irregular, uncertain, excessive or deficient capacity characterizes the calyces in fused kidney. The variation in dimension consists in excess or in deficiency in calicular length or diameter (see figures 4, 9, 29, 34, 43, 54, 55, 56). The dimension of the calyces correspond in general to the quantity of renal parenchyma drained—which being frequently irregularly distributed produces calyces of varying dimension in the same fused renal mass. The dimensions of the proximal and distal calyces in bilateral calicular duplicity are dissimilar, unequal, uncertain. In general, in calicular duplicity the proximal calyces are the lesser in dimension (see figures 4, 42, 55, 56). In some subjects in bilateral calicular duplicity the proximal calyces may be the larger (see figures 3, 6, 9). It is probable that the calyces in horse-shoe kidney is in general of greater dimension than that of the normal, being less in number (right 5 and left 6). The prominently exposed condition of the calyces external to the kidney lends the appearance of magnitude, of extra dimension.

17. *Distribution of ureteral calyces.* The renal extremities (i. e., at the cribrum benedictum) are distributed over extensive areas of the renal parenchyma (figures 8, 9, 25, 32, 34, 54, 55, 56). The reason of the distribution of the renal termination of the calyces over extensive renal areas is due to the flattened or planelike state of the renal parenchyma—the renal pyramids drain extensive and irregular territories of renal parenchyma. Islands of interstitial tissue intervene

among the parenchymatous masses separating them by various distances from each other and thus increasing the area of calicular distribution.

LOCATION OF THE URETER (PELVIS AND CALYCES) AS REGARDS THE AORTA AND VENA CAVA—IN SIXTY ILLUSTRATIONS.

The ureteral calyces and ureteral pelvis may be located on the opposite side of the kidney (isthmus renalis) to that of the aorta and vena cava—80%.

The pelvis and calyces may be located on the identical or same side with the aorta and vena cava—20%. In other words in 80% subjects possessing fused (horse-shoe) kidney the isthmus renalis intervenes between the ureter (calyces and pelvis) and the vena cava plus aorta.

DEDUCTIONS AND CONCLUSIONS.

The signification of the ureteral condition in fused (horse-shoe) kidney or congenital renal dystopia is of a high order of importance in practice. Anomalous position, dimension or form of the kidney may be a source of ureteral distortion. In the blooming of ureteral catheterization and surgical procedures it behooves us to study existing conditions of the ureter and also the kidney so far as it influences ureteral conditions and relations. In fused (horse-shoe) kidney with associated ureteral anomalies the main factors for consideration are:

i, *Physiology*. The utility of any organ is its functional capacity. Position possesses no characteristic as to function. A fused (horse-shoe) kidney with anatomically distorted calyces, pelvis and ureter proper may perform normal maximum ureteral function. It is true the dystopic kidney and ureter may perform their function under difficulties as renal pressure, ureteral flexions or reversed direction of the ureter (see figure 46). However, no recognizable pathologic physiology may be present. The ultimate object of the kidney and ureter is physiology—the function of separation of urine from the blood and transporting it to the bladder.

Physiology furnishes no clue to renal and ureteral anomalies.

ii, Anatomy.

The anatomy of anomalous kidney and ureter are important on account of the relations to adjacent structures. Congenitally dystopic kidney and ureter may interfere mechanically with adjacent organs from pressure during expansion and contraction. An anomalous kidney and ureter from the position, form, dimension may offer grave impediments to gestation, parturition, defaecation. The parenchyma of anomalous kidney and ureter is identical in structure to the normal. The ureteral catheter and x-ray may aid to reveal the distorted anatomy.

ii, Pathology.

Congenitally dystopic renal and ureteral apparatus is peculiarly liable to trauma especially during gestation parturition and defaecation. Horse-shoe kidney is liable to be accompanied by ureteral calculus (see figure 13).

iv, Clinically.

The congenital dystopic anomalies of renal and ureteral apparatus are of vast signification in clinical practice. In diagnosis the anomalous renal apparatus must be differentiated from other organs, masses, neoplasm. The congenitally dystopic renal apparatus may be confused with the spleen, liver, ovary. It may arise that the anatomic distortion of the ureter in a fused or horse-shoe kidney will not permit ureteral catheterization (see figures 45, 17). The ureteral pelvis from anatomical distortion is frequently more difficult to catheterize than the ureter.

v, Surgery.

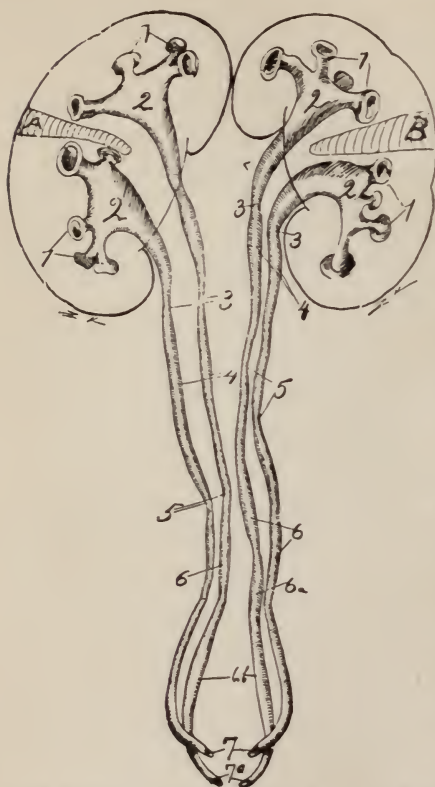
Congenital dystopia of the kidney and ureter is of extreme importance in surgical procedures. The position, form, and dimension of the renal apparatus is not the only significant possession. The renal isthmus—the junction of the parenchymatous fusion—the origin, distribution, number and location as well as relation of vessels plays a maximum role. In some fused (horse-shoe) kidney the ureter would be difficult to locate; 90% of ureters course ventral and 10% course dorsal to the renal surface.

SUMMARY OF URETERAL DATA IN FUSED (HORSE-SHOE) KIDNEY IN 60 SUBJECTS.

IN FUSED (HORSE-SHOE) KIDNEY:

URETER PROPRIUS.	93% possessed bilateral ureteral unicuity. 3½% possessed bilateral ureteral duplicity. 5% possessed central ureteral unicuity.
PELVIS URETERIS.	57% possessed bilateral pelvic unicuity. 30% possessed bilateral pelvic duplicity. 8% possessed unilateral pelvic duplicity and unilateral pelvic unicuity (mixed). 4% possessed central pelvic unicuity.
CALYCES URETERIS.	The right ureter possessed an average of 5 calyces and the left 6.
LOCUS URETERIS.	80% are located on ventral renal surface. 10% are located on dorsal renal surface. 5% are located on external lateral renal surface. 2% are located on internally medial to renal mass. 2% are located intra-parenchymatous.
LOCUS URETERIS.	Practically 90% of ureters course ventral to the renal surface, and 10% course dorsal to the renal surface.
RELATION OF URETER TO AORTA AND VENA CAVA.	In fused (horse-shoe) kidney in 20% of subjects the ureter (pelvis and calyces) was on the same side of the isthmus renalis with the aorta and vena cava. In fused (horse-shoe) kidney in 80% of subjects the ureter (pelvis and calyces) was on the opposite sides of the isthmus renalis from the aorta and vena cava.
BILATERAL SYMMETRY OF URETER PROPRIUS.	80% possessed bilateral symmetry of <i>form</i> . 70% possessed bilateral symmetry of <i>dimension</i> . 100% possessed bilateral symmetry of <i>number</i> . 30% possessed bilateral symmetry of <i>position</i> .
BILATERAL SYMMETRY OF PELVIS URETERIS.	7% possessed bilateral symmetry of <i>form</i> . 10% possessed bilateral symmetry of <i>dimension</i> . 98% possessed bilateral symmetry of <i>number</i> . 30% possessed bilateral symmetry of <i>position</i> .
BILATERAL SYMMETRY OF CALYCES URETERIS.	0% possessed bilateral symmetry of <i>form</i> . 0% possessed bilateral symmetry of <i>dimension</i> . 36% possessed bilateral symmetry of <i>number</i> . 15% possessed bilateral symmetry of <i>position</i> .

URETERAL CROSSINGS AND URETERAL VESICAL TERMINATIONS.



FUSED (HORSE-SHOE)
KIDNEY.

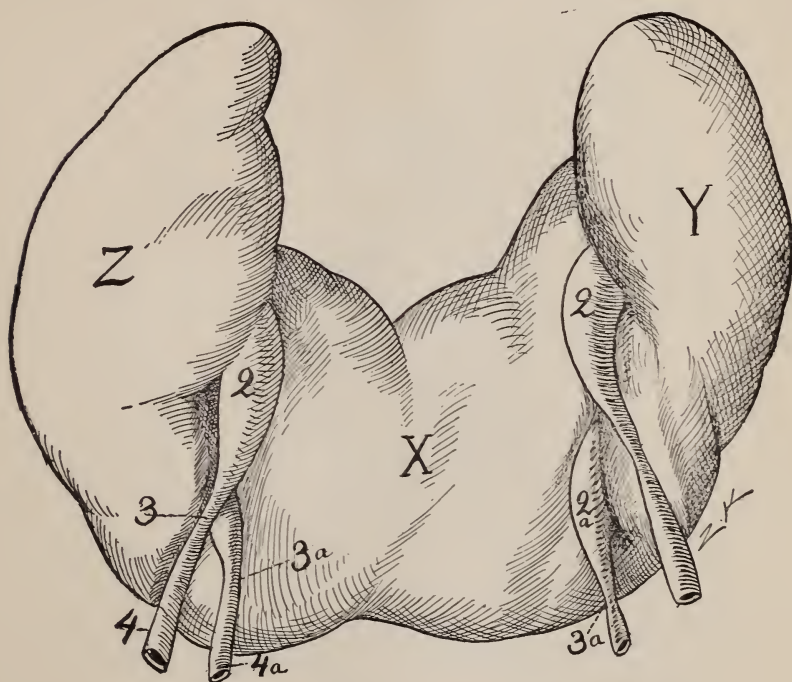
FIG. (1)

Bilaterally duplicate ureters. The ureteral calyces and pelves are separated by the renal wedge (A, B). 1, calyces; 2, pelves; 3, proximal, 5, middle; and 7, distal isthmuses; 2, proximal; 4, lumbar; and 6, pelvic dilatation. The ureters mechanically cross each other in the lesser pelvis. This specimen was presented to me by Dr. William Fuller.

FIG. 3. Fused (horse-shoe) kidney. Renese arcuati distal (distal renal poles fused). *Explanation. of illustration of signs.* Z, right and Y left renal isthmus; 2, 2, pelves of proximal ureters; 3, proximal ureteral isthmus of proximal ureter; 3a, proximal ureteral isthmus of distal ureter; 4 and 4a, middle ureteral dilatation (lumbar spindle). *Presentation, ventral*

renal surface. *Isthmus renalis*, X, parenchymatous, maximum fusion. Location, at distal renal pole, also dorsal to aorta and vena cava, however, ventral to the vertebral column. The isthmus renalis intervenes immediately between the vertebral column (dorsalward), and the vasa abdominalia magna with the ureters (ventralward); i.e., the ureters and great abdominal vessels are located on the same side of isthmus (ventral). *Hilus renalis*, bilateral hilus duplicity. Practical symmetry (as to form, position, dimension). Location on ventral and ventro-medial renal surface. Dimension, limited in major and minor diameters. Margin of hilum, definitive. Form, regular. *Sinus renalis*, bilateral sinus duplicity. Diameters, major and minor limited. *Ureter proper.* Bilateral ureteral duplicity and nonsymmetry (as to position), however, symmetry (as to form, dimension). Location, on ventral surface of bilateral mass. Form (isthmus, dilatation) marked. Dimension, normal. Course the proximal ureters cross ventral (and externally lateralward) to distal ureters bilaterally on the ventral renal surface (crossing the ureters—as a rule—occurs in the region of: (a), the greater and (b), the lesser osseous pelvis). *Pelvis ureteris*, 2, 2, proximal ureteral pelvis; 2a, 2a, distal ureteral pelvis. Bilateral pelvic duplicity and nonsymmetry (as to position), however, symmetry (as to form, dimension, number). Location, on ventral

surface of bilateral renal mass. Proximal ureteral pelvis greater in dimension than distal. Form and dimension, normal. The bilateral ureteral pelvis arranged in a proximo-distal line. *Calyces ureteris*, not exposed. Bilateral calicular duplicity and nonsymmetry as to position. Location, on ventro-medial renal surface of bilateral mass. *Vasa renalia*, insufficiently present to reconstruct relations. Aorta and vena cava courses on ventral surface of isthmus renalis. *Topography*. Holotopia, excessively medianward. Skele-

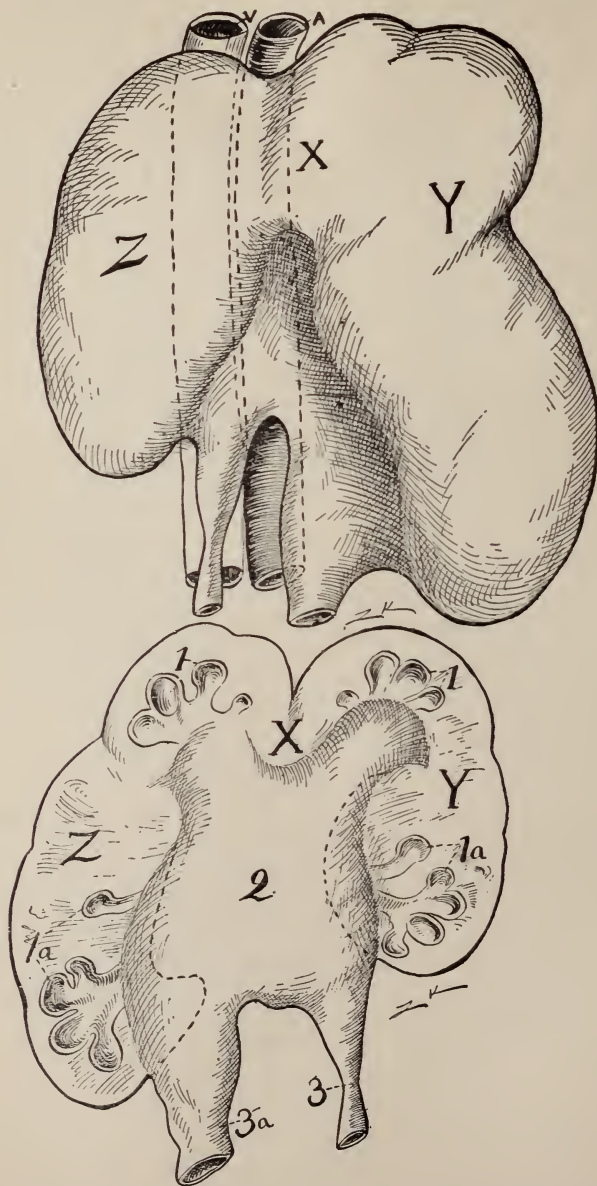


topia, excessively intimate with vertebral column and abnormally distalward. Syntopia abnormally intimate with aorta, vena cava and vasa iliaca communis. Idiotopia, distal renal pole rated medially. *Surface*, lobulated, fissured. *Form*, crescentine, reniform. *Symmetry*, practically symmetrical, the chief mass is located leftward, surface lobulated. *Dimension* equivalent to 2 normal renal organs. *Position*, distalward congenital renal dystopia. (From the pathologic museum of Rush Medical College, through the courtesy of Prof. E. R. LeCount.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 4. Fused (horse-shoe) kidney. *Renes arcuati proximal* (proximal renal poles fused). *Explanation of illustration of signs*. Z, right, and Y left renal mass. 2, single central pelvis ureteris. 1, 1, calyces ureteris of proximal ureter, 1a, 1a, calyces ureteris of distal ureter. X, renal isthmus. 3a, proximal ureteral isthmus of left and 3 of right ureter. *Presentation*, ventral renal surface (upper figure). Dorsal renal incised surface (lower

figure). *Isthmus renalis*. X, perenchymatous, location, at proximal renal ends and also ventral to aorta, vena cava and ureters. Isthmus renalis intervenes immediately between the aorta, vena cava and ureters (dorsally),



and the tractus intestinalis (ventrally), i.e., the great abdominal vessels with ureters and the tractus intestinalis lie on opposite surfaces of the isthmus. The vasa abdominalia magna and ureters lie between the isthmus and ver-

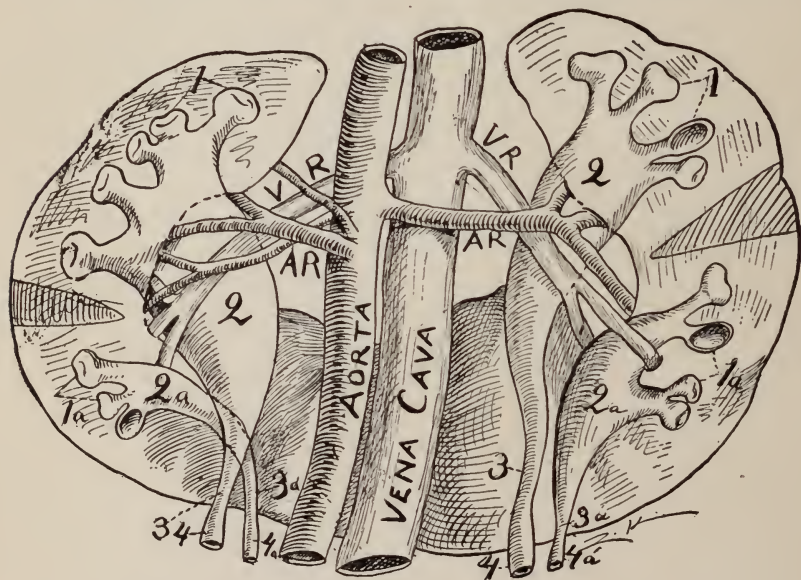
tebral column. Both ureters and vasa abdominalia magna lie dorsal to the isthmus. Dimension, medium. *Hilus renalis*, bilateral hilus unicity (coalesced) and nonsymmetry (as to position, form, diameter). Form, irregular with definitive circumference margin. Diameter, proximo-longitudinal, extensive; dorso-ventral, limited. *Sinus renalis*, bilateral duplicity and nonsymmetry (as to position, form, dimension). Paired. The proximal pair (*sinus renalis*) is lesser in dimension than the distal. The form and diameter (major, minor) varies. In subjects with duplicity of the *sinus renalis* the dimension is generally less than in those possessing unicity of *sinus renalis*. *Ureter proprius*. Bilateral unicity and nonsymmetry (as to form, position, dimension). Location on dorsal renal surface. The form (isthmuses and dilatation) marked; dimensions, usual. Course, abnormally medianward. The larger lateral renal mass (left) possesses the larger calyces ureterales, pelvis ureteris and ureter proprius. *Pelvis ureteris*. Pelvis unicus, central nonsymmetry. Location, on dorsal renal surface. Form, quadrilateral. Dimension, maximum. (The original bilateral pelvic duplicity coalesced to bilateral pelvic unicity, finally progressive pelvic coalescence resulted in pelvis unicus central). *Calyces ureteris*. Left 9, right 9. Bilateral calicular duplicity, nonsymmetry (as to form, position, dimension). Location, on dorsal surface of bilateral renal mass. Form, irregular. Dimension, irregular. Paired. The proximal pair of calyces ureteris is of less dimension than the distal calyces ureteris unusually localized in renal parenchyma.

Vasa renalia, not exposed (see fig. 5). Right—2 renal arteries and 1 renal vein. Left—2 renal arteries and 3 renal veins. Practically bilateral renal vascular duplicity. Nonsymmetry (as to position). Nonpaired. *Vasa renalia* present, rich supply and marked bifurcation at proximal and distal extremities. All enter hila except one *arteria renalis* (which penetrates the ventral renal surface of the left lateral mass) and branch one *vena renalis* (which penetrates the ventral renal surface of the left lateral renal mass). Location, irregularly distributed along the vena cava and aorta. Renal veins lie ventral to renal arteries. *Topography*. Holotopia, excessively medianward. Skeletopia, abnormally intimate with vertebral column. Syntopia, excessively adjacent to aorta and vena cava. Idiopia, proximal renal poles abnormally rotated medianward. Form, inverted crescent. Symmetry, bilaterally nonsymmetrical, the chief renal mass tends leftward and proximalward. Surface, lobulated, fissured. Dimension, equivalent to two kidneys. Position, congenital renal dystopia (fixed by vessels, nerves, ureteral pelvis). (From the pathologic museum of Rush Medical College, through the courtesy of Prof. E. R. LeCount.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 6. Fused (horse-shoe) kidney. *Renēs arcuati distal* (distal renal poles fused). *Explanation of illustration signs*. A.R., *arteria renalis*. V.R., *vena renalis*. 1, 1, calyces of proximal ureter. 2, 2, pelvis of proximal ureter. 1a, 1a, calyces of distal ureter. 2a, 2a, pelvis of distal ureter. 3, 3, proximal isthmuses of proximal ureter. 3a, 3a, proximal isthmuses of distal ureter. 4, 4, lumbar spindle of proximal ureter. 4a, 4a, lumbar spindle of distal ureter. *Presentation*. Dorsal view. *Isthmus renalis*. Parenchymatous. Fusion, maximum. Location, ventral to aorta and vena cava. The ureters are located on the same side of the isthmus as the aorta and vena cava, i.e., dorsally. Surface, slightly lobulated. The isthmus lies immediately between

the aorta and vena cava (dorsally) and the abdominal viscera (ventrally). *Hilus renalis*. Bilateral hilus unicity and nonsymmetry (as to form and dimension). Circumference margin, indefinite. Location, on ventro-medial surface. *Sinus renalis*. Bilateral sinus duplicity. The sinus renales on each lateral renal mass are divided by a renal wedge. The major and minor diameters, liberal. *Ureter proprius*. Bilateral ureteral duplicity and symmetry (as to position, form, dimension). Location, on the dorsal renal surface. One pair of the ureters—the left—cross proximal to the proximal ureteral isthmus. Ureteral crossing—as a rule—occurs generally in the space between the bladder and the crest of the ilium. In this particular subject the distal ureter crosses ventral to the proximal ureter. The dimension of the proximal ureters (proper) possess greater dimension than those of the



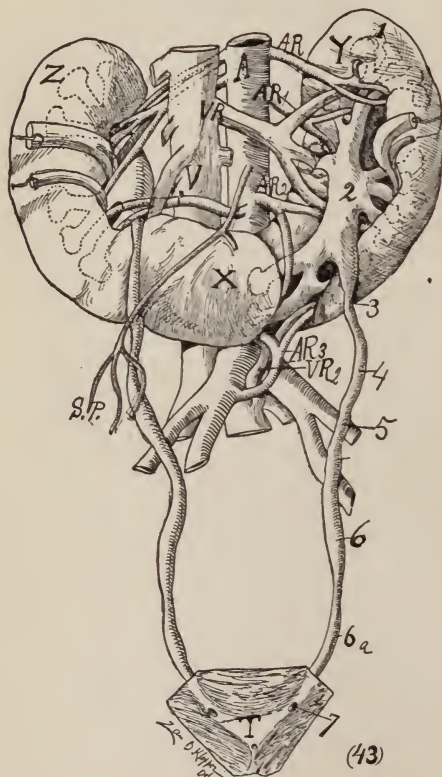
distal. The form of the ureter—isthmus and dilatation—are marked. Dimension, usual. *Pelvis ureteris*. Bilateral pelvic duplicity and nonsymmetry (as to form, position, dimension). Location, on ventro-medial renal surface. Form, proximal regular, distal irregular. Dimension, proximal maximum, distal minimum. *Calyces ureteris*. Right, 8, left, 8. Bilateral calicular duplicity. Location, on dorsal renal surface. The calyces of the proximal ureter (1, 1,) possesses the greater dimension. Between the calyces is located an intercalicular renal wedge. The calicular stalks or pedicles are abnormally limited in length. The calyces are concentrated in a limited area of renal parenchyma. *Vasa renalia*. The left renal mass possesses three renal arteries and a single renal vein. The right mass possesses a single artery and a vein. *Vasa renalia* all enter hila. The veins lie ventral to the arteries. The direction of the arteries are transverse and that of the veins distalward. *Vasa renalia* all enter hila except on proximal pole of right renal mass, practically bilaterally symmetrical and paired relative to veins and arteries. The main arterial volume attends the proximal ureteral pelves and calyces.

me by Dr. A. M. Cartledge, Louisville, Kentucky, was sketched during a peritonotomy on an adult male who was living 2 years subsequent to the operation.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 43. Fused (horse-shoe) kidney. Renes arcuati distal (renal poles fused at the distal end). Adult male.

Explanation of illustration signs. A, aorta. V, vena cava. Z, right and Y left lateral renal mass. X, isthmus renalis. AR, AR¹, AR², AR³,



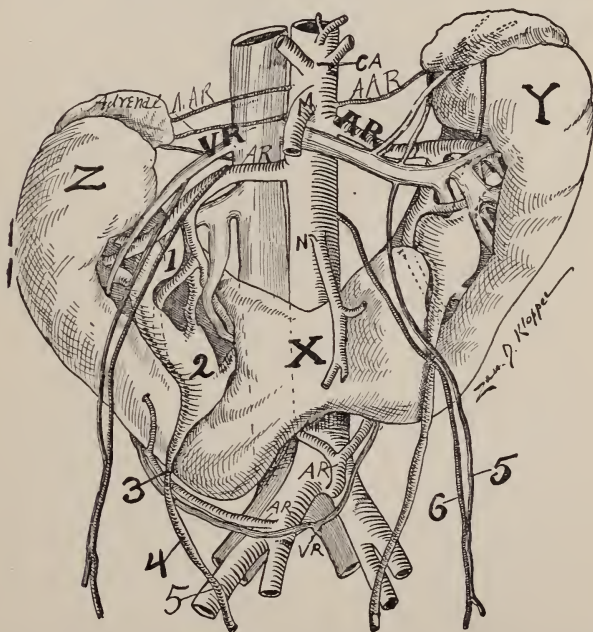
left renal arteries. VR, renal veins. 1, ureteral calyces. 2, ureteral pelvis (dilatation); 3, proximal ureteral isthmus; 4, lumbar spindle (dilatation); 5, middle ureteral isthmus; 6 and 6a, pelvic ureteral spindles; 7, distal ureteral isthmus (vesical orifice). S.P., arteria spermatica. *Presentation.* Ventral view. *Isthmus renalis.* X, parenchymatous, maximum fusion. It is located directly ventral to the vena cava and aorta, however directly dorsal to the ureters. Both ureters and isthmus renalis are located ventral to the vasa abdominalia magna, *i.e.*, ureters and vasa abdominalia magna lie on opposite sides of the isthmus renalis. *Hilus renalis.* Location bilateral, left on ventral renal surface, right on medial renal surface. Bilateral nonsymmetry (as to form, position, dimension). Form, left irregular, extensive, indefinite; right, definitive limited. Dimension, left extensive, right normal. Hila reserve all vasa re-

nalialia except a branch of the proximal left renal artery. *Sinus renalis.* Left, extensive plane with dorso-ventral diameter limited. Right, a definitive renal excavation, normal in character. *Ureter proprius.* Bilateral ureteral unicity and symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form (isthmuses and dilatations), marked. Dimension, normal. Course, practically normal. *Pelvis ureteris.* Bilateral pelvic duplicity and nonsymmetry (as to form, position, dimension). Location, bilateral; left on ventral renal mass, right on medial renal mass. Form, irregular on left, right within normal range. Dimension, left, excessive. *Calyces ureteris.* Left 14; right 6. Bilateral calicular duplicity and nonsymmetry (as to form, number, dimension, distribution, position). Location, bilateral, however, on ventral surface of left renal mass. Form, left irregular, right normal. Dimension, right normal left excessive

or deficient. Distribution in left mass irregular, over extensive parenchymatous areas. *Vasa renalia*. Right 4 arteries and 4 veins. Left 4 arteries and 2 veins. Bilateral renal arterial quadruplicity and symmetry (as to number, position, diameter)—nonsymmetry (as to length). Arteries paired. Veins, bilaterally nonsymmetrical (as to number, form, diameter, position). They are not paired. *Vasa renalia* all enter hila except a single branch of the left proximal arterial trunk. Veins ventral to arteries. Right *vasa renalia* the longer. *Vasa renalia* trunk from *vasa iliaca* to isthmus renalis divides to supply the bilateral segment of the isthmus. *Topography*. Holotopia, located excessively medianward and distalward. Skeletopia, abnormally intimate with vertebral column and particularly with the sacrum promontorium. Syntopia, excessively intimate with *vasa abdominalia magna*. Idiopia, distal renal poles abnormally rotated medialward. *Form*. Elongated crescent. *Symmetry*, bilaterally nonsymmetrical. *Surface*, lobulated, fissured. *Dimension*, equivalent to two kidneys. *Position*, distalward congenital renal dystopia. (Presented to me from Rush Medical College Pathologic Museum by the courtesy of Prof. E. R. LeCount and Mr. Emeric Rosenberg, Procurator.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 42. Fused (horse-shoe) kidney. *Renēs arcuati distal* (poles fused at distal end). *Explanation of illustration signs*. A.R., arteria renalis.



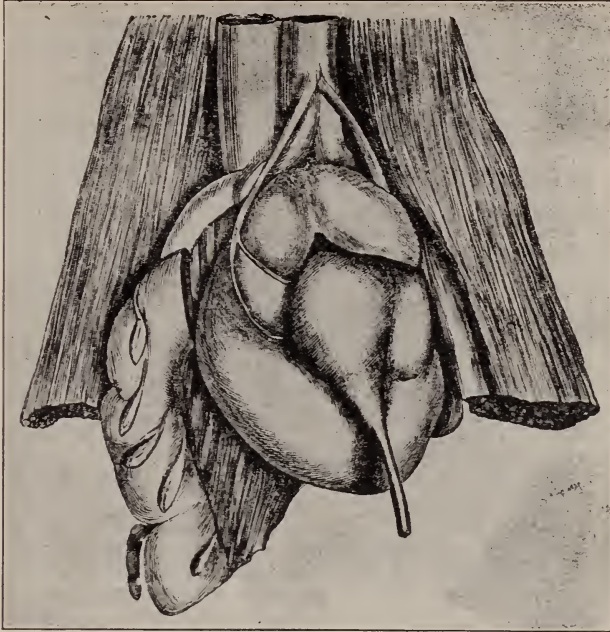
V.R., vena renalis. A.A.R., arteria adrenalis. C.A., arteria coeliaca. M., arteria mesenterica proximal. N., arteria mesenterica distal. Z., right, and Y., left lateral renal mass. X., isthmus renalis. (5 and 6) vasa spermatica. 1, calyces. 2, ureteral pelvis. 3, proximal ureteral isthmus. 4, lumbar spindle. 5, middle ureteral isthmus. *Presentation*. Ventral view. *Isthmus renalis*. Parenchymatous. *Dimension*, limited. *Location*. At distal renal poles, also

ventral to aorta and vena cava, but dorsal to the ureters. The isthmus renalis intervenes directly between the vasa abdominalia magna (dorsalward) and the ureters (ventralward). Both ureters and isthmus renalis are located ventral to the vena cava and aorta. *Hilus renalis*. Bilateral hilus unicity and nonsymmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Dimension—diameters (proximo-distal) medium, (transverse) liberal. Form, irregular. Circumference margin definitive. *Sinus renalis*. Presents distinct bilateral renal excavations with marked diameters. *Ureter proprius*. Bilateral ureteral unicity and symmetry (as to form, dimension), nonsymmetry (as to position). Location, on ventral renal surface. The form isthmuses—3, 5, and dilatation—(1, 2, 4) marked. Dimensions, normal. Course left normal; right, abnormal, flexed. *Pelvis ureteris*. Bilateral pelvic duplicity and nonsymmetry (as to form, position, dimension). Location, on the ventral renal surface. Form, irregular. Dimension, moderate. *Calyces ureteris*. Left 5, right 6. Bilateral calicular duplicity and nonsymmetry (as to form, position, number, dimension, vascular relations). Location, on ventral renal surface. Form, irregular. Dimensions within normal. *Vasa renalia*. Right, 3 arteries and 3 veins. Left, 2 arteries and 2 veins. A remarkable vascular factor is that the arteria renalis (trunk) which arises from the aortic bifurcation emits one branch to the right renal mass and the other to the left in the region of the isthmus renalis. Ligation of this renal trunk would affect both lateral renal masses. The right vasa spermatica originates from the right vast renalia. The left arteria spermatica arises from the aorta and the vena spermatica from the renal. One of the right venal arteries arises from the arteria iliaca communis dextra. Vasa renalis emerge in two segments (paired), the proximal from the aorta and vena cava enter renal hila, the distal from the vasa iliaca communis. *Topography*. Holotopia, the distal renal poles are abnormally medianward. Skeletoptia, the distal renal poles abnormally intimate with the vertebrae. Syntopia, the distal renal poles abnormally intimate with the aorta, vena cava, vasa spermatica. *Form*, crescentic. *Symmetry*, bilaterally nonsymmetrical. *Surface*, lobulated, fissured. *Dimensions*, equivalent to two kidneys. *Position*, distalward congenital renal dystopia. (This specimen was presented to me by Dr. Rudolf Matas of New Orleans, Louisiana.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 16. Fused (horse-shoe) kidney. Renes compositæ central. Malformed, distorted, compound kidney surrounded by the sigmoid on the right. *Presentation*. Ventral renal surface. *Isthmus renalis*. Parenchymatous, consisting of the longitudinal coalescence of the medial renal margins, maximum coalescence, fusion. Location, central renal mass also in the bifurcation of the vasa abdominalia magna, *i.e.*, practically located immediately between aorta and vena cava (————) and ureter (————); both the ureters and isthmus renalis lie ventral to the aorta and vena cava. *Hilus renalis*. Central hilus unicity. Form, circular, resembling coalesced bilateral hilus renalis. Hilus margin, definitive. Dimension, equivalent to two hila. *Sinus renalis*. Occupies a central ventral renal excavation. Diameters, major and minor, limited. *Ureter proprius*. Central ureteral unicity. Location, on ventral renal surface. Form (isthmuses, dilatation), marked. Dimension, limited. Course, distorted. *Pelvis ureteris*. Central pelvic unicity. Location, on ventral central renal surface. Form, funnel-shape. Dimension,

unusually large. The pelvis contains a calcium oxalate calculus. *Course.* Abnormally medianward and centralward. *Calyces ureteris.* Not exposed. *Vasa renalia.* Bilateral vascular unicity (arterial). Vasa renalia do not enter hila. *Topography.* Holotopia, excessively centrally located. Skele-

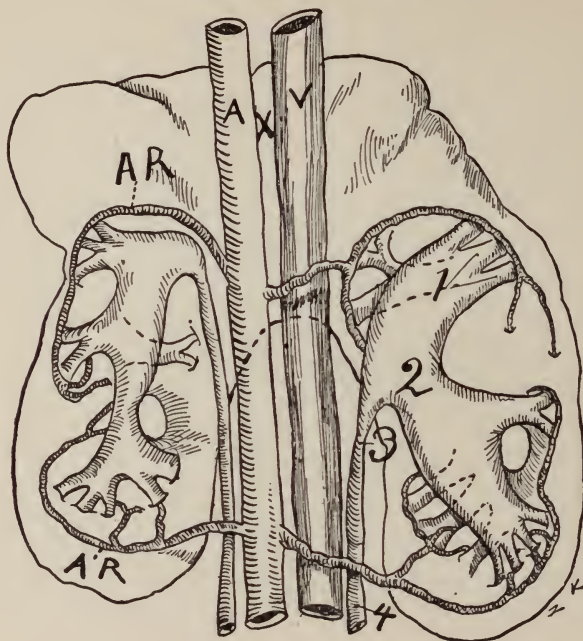


topia, abnormally intimate with sacrum. Syntopia, excessively intimate with vasa iliaca. Sigmoid and bladder. Idiotope. The individual renal segment is distorted. *Form,* oval, heart-shaped. *Surface,* lobulated, fissured. *Dimension,* exceeds size of single normal kidney. *Position* distalward congenital renal dystopia. (After Canton.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 17. Fused (horse-shoe) kidney. Renes arcuati, proximal (poles fused at proximal end). From a nineteen-year-old male negro. *Explanation of illustration signs.* A, aorta. V, vena cava. X, isthmus renalis. A.R., arteria renalis. 1, calyces. 2, pelvis. 3, proximal ureteral isthmus. 4, lumbar ureteral spindle. *Presentation.* Dorsal renal surface. *Isthmus renalis.* Parenchymatous. Located at proximal renal poles and also ventral to aorta and vena cava. The ureters with vena cava and aorta are located on the same side of the isthmus, i.e., on the dorsal surface. The isthmus renalis intervenes immediately between the ureters and vasa abdominalia magna (dorsalward) and the tractus intestinalis (ventralward). *Dimension,* unusual. *Hilus renalis.* Bilateral hilus unicity and symmetry (as to position), however nonsymmetry (as to form, dimension). Location, on distal dorsal renal surface. Hilus margin, extensive, nondefinitive. Diameters, major and minor abnormally excessive. *Sinus renalis.* Practically an extensive renal plane. Diameters, dorso-ventral minimum; proximo-distal extensive. *Ureter proprius.* Bilateral ureteral unicity and nonsymmetry (as to

position, form, dimension). Location, on dorsal surface of bilateral renal mass. Form (isthmus—3 dilatations—1, 2, 4) pronounced. Dimension, normal. Course, distorted, practically within normal range. *Pelvis ureteris*. Bilateral pelvic duplicity and nonsymmetry (as to form, position, dimension). Location, on dorsal renal surface. The form is irregular, distorted. The

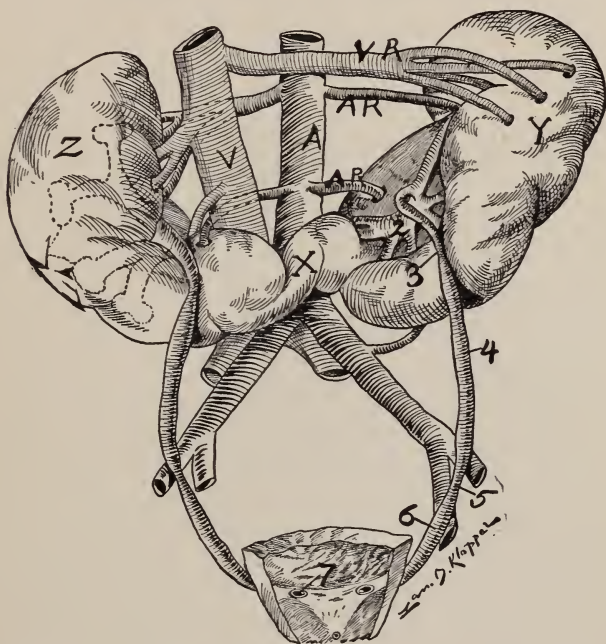


dimensions are excessive. *Calyces ureteris*. Left, 12; right, 16. Bilateral calicular duplicity and nonsymmetry (as to form, number, dimension, position). Location, on dorsal distal renal surface. *Form*, irregular, distorted. Dimension, diameters excessive or deficient. Distribution, irregular over extensive renal areas. *Vasa renalia*. Bilateral vascular duplicity. Symmetry (as to position, number). Renal arteries to veins and ureters are paired. The arterial renal distribution is peculiar in its course. *Vasa renalia* practically all enter hila. *Topography*. Holotopia, located excessively medianward. Skeletopia, abnormally intimate with vertebræ. Syntopia, excessively intimate with aorta and vena cava. Idiopia, the proximal renal poles are abnormally rotated medianward. *Form*. Inverted crescent, inverted U. *Symmetry*, nonsymmetrical. The chief mass tends rightward. *Surface*, lobulated, reniform, fissured. *Dimensions*. Not equivalent to two normal kidneys. *Position*. Proximalward, congenital dystopia. (This specimen was presented to me by Nurse West, a medical student, who secured it while dissecting a 19-year-old male negro.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 35. Fused (horse-shoe) kidney. Renes arcuati distal (distal poles fused). *Explanation of illustration signs*. A, aorta. X, isthmus renalis. V.R., vena renalis. A.R., arteria renalis. 1, calyces (dotted lines shimmer-

ing through the renal parenchyma). 2, ureteral pelvis. 3, proximal ureteral isthmus. 4, lumbar spindle. 5, middle ureteral isthmus. 6, pelvic spindle. 7, distal ureteral isthmus (vesical orifice). *Presentation*. Ventral renal surface. *Isthmus renalis*. Parenchymatous—? Connective tissue. Limited fusion. Location, at distal renal poles, also ventral to aorta and vena cava, however, dorsal to ureters. The isthmus renalis intervenes immediately between the vasa abdominalia magna (dorsalward) and tractus intestinalis (ventralward). The great abdominal vessels and the ureters are located on opposite isthmian surfaces. *Hilus renalis*. Bilateral unicity and symmetry (as to position), however, nonsymmetry (as to dimension, form). The margin of the hilus definitive. Diameters (left hilus, extensive, (right hilus), limited. *Sinus renalis*. Left practically a plane. Right, maximum major and minor diameters. *Ureter proprius*. Bilateral ureteral unicity and symmetry (as to form, position, dimension, course). Location, on ventral sur-

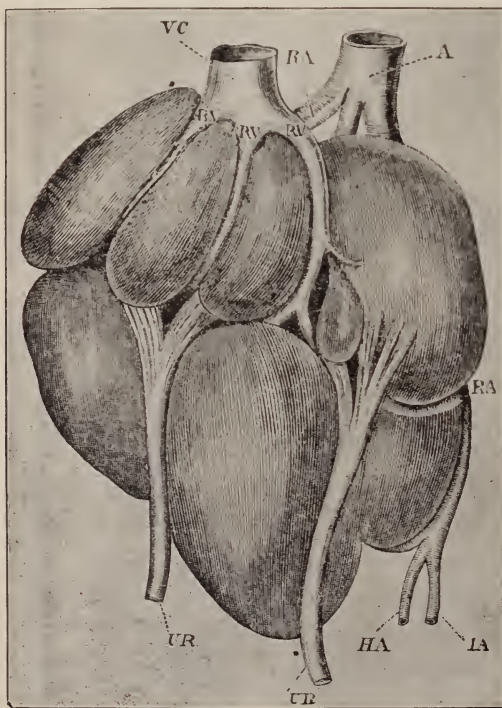


face of bilateral renal mass. Form (isthmuses—3, 5, 7, dilatations—1, 2, 4, 6) marked. Dimensions normal. *Course*. Left flexed at ureteral pelvis, right normal. *Pelvis ureteris*. Bilateral pelvic duplicity and symmetry (as to position), however, nonsymmetry (as to form, dimension). Location, on ventral renal surface of bilateral renal mass. Form, irregular, distorted. Dimension limited. *Calyces ureteris*. Not exposed. Bilateral calicular duplicity and nonsymmetry (as to form, number, dimension, relation to vessels), however, symmetry (as to position). Right 4, left 7 calyces. Location, on ventral and ventro-medial surface of the bilateral renal mass. Form, irregular, distorted, elongated. Dimension, increased or diminished. Distribution irregular over extensive renal areas. *Vasa renalia*. Right 2 arteries, left 3. Right 2 renal veins, left 1. Vasa renalia partially paired. Bilateral sym-

metry (as to arterial position, number, dimension). Veins ventral to arteries. Vasa renalia enter hila except 3 venous and 1 arterial branch on left and 1 venous and 2 arterial branches on right. *Topography*. Holotopia, the distal renal poles rotated excessively medialward. Skeletopia, abnormally intimate with the vertebral column. Syntopia, excessively intimate with the vena cava and aorta. Idiotopeia, the proximal renal poles rotated abnormally externally lateralward and the distal poles rotated abnormally medialward. *Form*. Segment of elongated crescent. *Symmetry*. Bilaterally nonsymmetrical. Chief mass tends leftward and proximalward. *Dimension*. Equivalent to two kidneys. *Surface*. Irregularly lobulated, fissured. *Position*. Distalward, congenital renal dystopia. (This specimen was presented to me by Dr. A. M. Stober and Dr. Walsh.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 44. Fused (horse-shoe) kidney. Renes compositæ central. Kidney fused at its central mass. *Explanation of illustration signs*. A, aorta. V.C., vena cava. R.A., arteria renalis. R.V., vena renalis. U.R., ureter. I.A., arteria iliaca. H.A., arteria hypogastrica. *Presentation*. Ventral view.



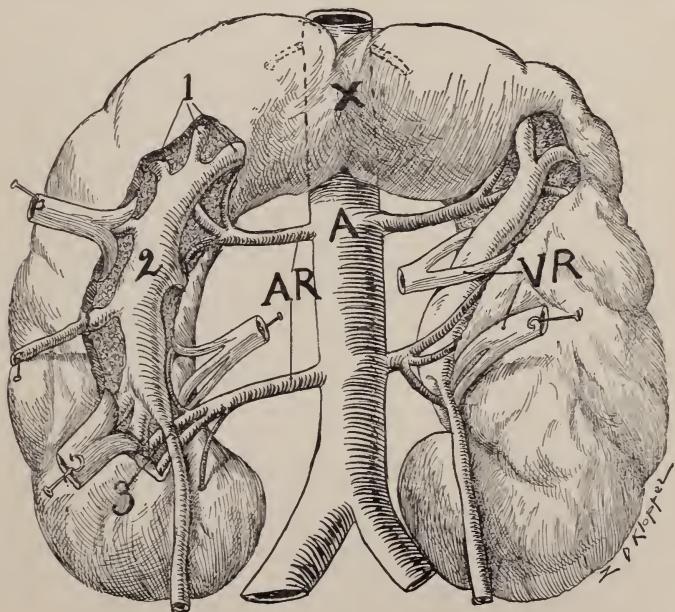
Isthmus renalis. It is an interlobular isthmus. Parenchymatous and connective tissue. Dimensions, maximum. Location, at central renal mass and also directly ventral to aorta and vena cava, but directly dorsal to ureters. Both isthmus renalis and ureters lie ventral to vasa abdominalia magna. *Hilus renalis*. Bilateral hilus unicity and symmetry (as to position) nonsymmetrical (as to form, dimension). Location, on ventral surface of renal mass. Form, distorted, definitive renal margin. Dimensions, moderate. *Sinus renalis*. Definitive renal excavation with marked diameters. *Ureter proprius*. Bilateral ureteral unicity and symmetry (as to form, dimension) nonsym-

metry (as to position). Location, on ventral renal surface. Course, distorted. Dimension, normal. *Pelvis ureteris*. Bilateral pelvic unicity and symmetry (as to position) nonsymmetry (as to dimension, form). Location, on ventral renal surface of composite renal mass. Form, distorted. Dimensions, limited. *Calyces ureteris*. Not exposed. *Vasa renalis*. Renal veins

3, visible coursing interlobular. Renal arteries 2, visible coursing, 1 ventral and 1 dorsal. Renes compositæ central are generally rich in numerous renal vessels. Vasa renalia tends to enter hila. *Topography*. Holotopia, excessively medialward and distalward. Skeletopia, abnormally intimate with the vertebral column. Syntopia, profoundly intimate with vasa abdominalia magna. Idiotopeia, axes of renal organs distorted. *Form*. Heart-shaped mass. *Symmetry*. Bilateral nonsymmetry. *Surface*. Lobulated, fissured. *Dimensions*. Equivalent to two renal organs. *Position*. Distalward medianward congenital renal dystopia. (After Botallus.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 54. Fused (horse-shoe) kidney. Renes arcuati proximal (distal renal poles fused). *Explanation of illustration signs*. A, aorta. A.R., arteria renalis. 1, calyces. 2, pelvis (ureteral). 3, isthmus (ureteral). *Presentation*. Ventral view. *Isthmus renalis*. X, parenchymatous. *Location*, at proximal renal poles also ventral to aorta and vena cava but dorsal to ureters. The isthmus renalis lies immediately between the aorta and vena cava (dorsally) and the ureters (ventrally). Both isthmus and ureters lie ventral to vasa abdominalia magna, i.e., ureters and great abdominal vessels lie on opposite surfaces of the isthmus. *Dimension*, limited fusion. *Hilus renalis*. Bilateral hilus unicity and symmetry (as to position), however, nonsymmetry (as to form, dimension). *Location*, on ventral surface of each bilateral renal mass with an extensive, definitive boundary (on right side a limited mantle of renal parenchyma has been dissected in order to expose



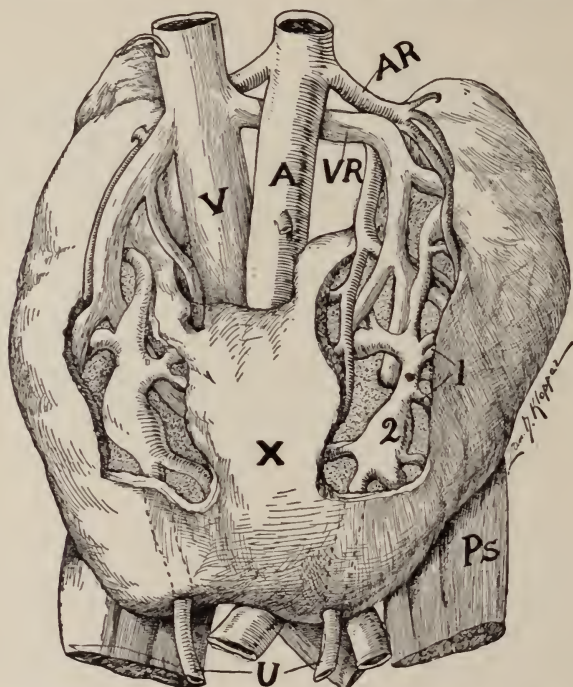
the calicular pedicles). *Form*, irregular. *Dimension*, excessive. *Sinus renalis*. An extensive space with limited dorso-ventral diameter, however, liberal proximo-distal diameter. *Ureter proprius*. Bilateral ureteral unicity

and symmetry (as to position, dimension, form). Location, on ventral surface of bilateral mass. Form (isthmuses 3 and dilatations 1, 2) normal, as is the dimension and course. *Pelvis ureteris*. Bilateral pelvic duplicity and symmetry (as to position), nonsymmetry (as to form, dimension). Form, irregular, elongated. Dimension, maximum. Location, on ventral surface of bilateral mass. *Calyces ureteris*. Not exposed. Right, 9 calyces, left, 4 calyces. Bilateral calicular duplicity and nonsymmetry (as to position, number, dimension). Location, (right) on ventral renal surface, (left) on ventro-medial renal surface. Dimension and form, distorted. Distributed over extensive area of renal parenchyma. *Vasa renalia*. Bilateral renal vascular triplicity and symmetry (as to position, dimension, distribution and paired). The hila receive all vasa renalia except the proximal pair (arteriæ renales) and a single branch of the right distal arteria renalis which penetrates the renal parenchyma like a saber, resembling an accessory renal artery. One only of the arteriæ renales (the left distal) bifurcates abnormally adjacent to its origin. The proximal pair of arteriæ renales is located dorsal to the isthmus renalis. *Topography*. Holotopia, abnormally ventralward and proximalward. Skeletopia, excessively adjacent to vertebral column. Syntopia, abnormally intimate with aorta, vena cava, arteria mesenterica proximal and vasa iliaca communis. Idiotopia, proximal renal poles rotated abnormally medially. *Form*, inverted crescent or arch. *Dimension*, bilaterally symmetrical. *Surface*, lobular, fissured, reniform. *Dimension*, equivalent to two normal kidneys. *Position*. Proximalward congenital renal dystopia. (Presented to me by Dr. Warren Hunter of Chicago.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 55. Fused (horse-shoe) kidney. Renes arcuati distal (renal poles fused at distal ends). Adult male. Died of acute nephritis. *Explanation of illustration signs*. A, aorta. A.R., arteria renalis. 1, calyces. 2, pelvis (ureteral). 3, isthmus (proximal ureteral). X, isthmus renalia. *Presentation*. Ventral renal surface. *Isthmus renalis*. X, parenchymatous, maximum fusion. It is located ventral to the aorta and vena cava, however dorsal to the ureters. The isthmus lies immediately between the vasa abdominalia magna (dorsally) and ureters (ventrally). Both ureters and isthmus lie ventral to the great abdominal vessels, i.e., vasa abdominalia magna and ureters lie on opposite surface of the isthmus. Dimension, maximum. *Hilus renalis*. Location, bilaterally on ventral surfaces of lateral renal masses with extensive definitive boundary and receives all arteriæ renales. Nonsymmetrical bilaterally (in form, location, dimension). *Sinus renales*. Extensive space—major and minor diameters magnified. *Ureter proprius*. Bilateral unicity and nonsymmetry (as to position, form, dimension). Location, on ventral surface of each renal mass. The form (isthmuses and dilatations) marked. Dimension, as usual. Course, distorted. *Pelvis ureteris*. Bilateral duplicity and nonsymmetry (as to position, form, dimension). Location, bilateral on the ventral surface of each lateral renal mass. Form, irregular. Dimension, excessive. *Calyces preteris*. Not exposed. Right 12 and left 11. Bilateral calicular duplicity and nonsymmetry (as to form, number, dimension, position). Location, bilateral on ventral surface of each lateral renal mass. The form, irregular. Dimension increased (elongated, excessive in diameter). Distribution, irregular over extensive parenchymatous areas. *Vasa renalia*. Right 3 renal arteries, left 2 renal arteries.

laterally intra parenchymatous. Form (isthmus, dilatation) and dimension normal. Course (proximal end) intra parenchymatous, (distal end) excessively medianward. *Pelvis ureteris*. Bilateral pelvic duplicity and non-symmetry (as to form, position, dimension, and relation to venal vessels). Location, on ventral surface of bilateral renal mass. Form, irregular, dimension—diameters, limited. *Calyces ureteris*, not exposed, right 5, left 11.

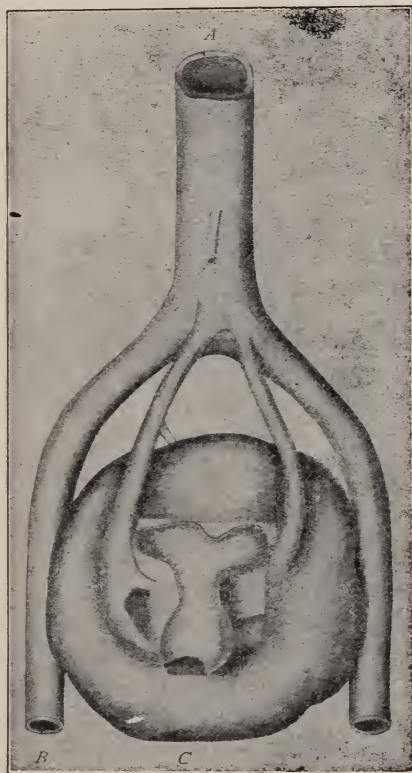


Bilateral calicular duplicity and nonsymmetry (as to position, form, dimension, number, and relation to renal vessels). Location, bilaterally on ventral renal surface. Form, irregular. Dimension, diameters limited. Distribution, irregular over extensive parenchymatous areas. *Vasa renalia*. Bilateral vascular unicity and symmetry (as to position, number). Paired. Location, normal. Veins ventral to arteries. *Vasa renalia* all enter hila except ramus arteria renalis on the proximal pole of each lateral mass and a ramus vena renalis on right renal mass. *Topography*. Holotopia, abnormally medianward and distalward. Skeletopia, excessively intimate with vertebral column and sacrum promontorium. Syntopia, abnormally adjacent to vena cava, aorta and vasa iliaca communis. Idiotopia, distal renal poles abnormally rotated medianward. *Form*, crescentic. *Symmetry*, nonsymmetrical bilaterally—left mass tends leftward and proximalward. *Surface*, reniform, lobulated. *Dimension*, equivalent to 2 normal kidneys. *Position*. Distalward, congenital renal dystopia. (Presented to me by Dr. Harry O. White, Anatomist of College of Physicians of Chicago.)

FUSED (HORSE-SHOE) KIDNEY.

FIG. 59. Fused (horse-shoe) kidney. *Renes compositæ* central (central median renal fusion). The specimen presents the idea of fusion of proximal and distal renal poles with fusion of ureteral pelvis and ureter proper.

Explanation of illustration signs. A, aorta. B, arteria communis dextra. C, kidney, located in lesser pelvis. *Presentation.* Ventral view. *Isthmus renalis.* Parenchymatous. Dimension, maximum renal fusion. Location, an interval between medial margin of bilateral renal mass. The isthmus renalis lies directly between tractus intestinalis (dorsally) and ureters (ventrally). *Hilus renalis.* Central hilus unicity and symmetry. Location, on ventral surface of central renal mass. Form, distorted. Dimension, limited. *Sinus renalis.* Bilateral sinus unicity and symmetry. *Ureter proprius.* Ureteral unicity. Location, central medial. Form (isthmus, dilatation), marked. Dimension, liberal. Course, distorted. *Pelvis ureteris.* Bilateral



pelvic unicity and symmetry (as to form, position, dimension). Location, on ventral surface of central renal mass. Form, normal; dimension, usual. *Calyces ureteris.* Not exposed. *Vasa renalia.* Bilateral arterial unicity and symmetry (as to position). Location, originates from aortic bifurcation. Vasa renalia enter hila except a branch of right renal artery which penetrates like a poniard the dorsal renal surface. Renal vessels elongated. *Topography.* Holotopia, excessively medianward and distalward. Skeletopia, abnormally intimate with the sacrum. Syntopia, excessively intimate with the tractus genitalis and tractus urinarius and distal end of tractus intestinalis. Idiotopeia, the proximal and distal poles are abnormally rotated medianward. Form, circular disc. *Symmetry.* Bilateral symmetry. *Surface.* Dorsally lobulated. *Dimensions,* equivalent to two kidneys. *Position.* Distalward congenital renal dystopia. (After Coplin.)

Original Abstracts and Translations

TREATMENT OF NON-TUBERCULOUS ABSCESS OF THE PROSTATE.—Dr. Oraison of Bordeaux (*La Tribune Médicale*) states that in treating prostatic abscess three ways are offered to the surgeon: The urethra, the rectum and the perineum. Formerly a catheter was introduced into the urethra, was pushed with force against the prostate, into which it penetrated and evacuated. This brutal and blind procedure presented serious dangers. To-day we are satisfied to practice massage and lavage once or several times daily. These maneuvers can be performed by any practitioner. The pus flows easily and drains regularly if the patient is watched carefully. There is no danger of retention of urine in the abscess cavity. Urethrorectal fistulæ are rare, and heal well when they occur. This method may therefore be employed in the average case without any great inflammatory reaction, but we must be ready to act more energetically if circumstances require.

The rectal route, which was for a long time preferred because the abscess often points toward the rectum, because the incision is easy and recovery is rapid, had its inconveniences because the incision had to be made at the tip of the finger, blindly, and was often insufficient and sometimes dangerous. These inconveniences disappear if the incision is made under the control of the eye, after introducing a speculum into the rectum. Experience shows that the contact of fecal material does not cause complicating infections, that the hemorrhage which may arise can easily be arrested, that urethrorectal fistulæ are exceptional, that drainage is easy because the incision is at the bottom of a declivity and that drainage is only necessary during the first few days because recovery is rapid. It is the method of choice, save in the

simple cases in which the preceding method may be employed.

The perineal method of operation has been more generally adopted since the works of Segond and Dittel. It comprises several unsuitable or dangerous procedures. Usually the prerectal incision employed for prostatectomy is used for this operation. It offers some serious disadvantages: It does not lie lower than the rectal incision; the possible hemorrhages in the perineum are not more easily arrested; simple perineal or urethro-perineal fistulæ are frequent; the incision is complicated and requires special anatomical studies. It predisposes to rectoperineal fistulæ. The healing is very slow after this operation, and with this method we are more apt to injure the ejaculatory ducts. The perineal method, therefore, should be reserved for the cases which require the most minute post-operative care, for the old cases or the complicated cases which require a complex operation, or for those cases in which the abscess tends to point toward the perineum.

Similar to the perineal method just described are two other procedures, those of Desnos and of Alexander, in which the urethra is deliberately opened. Finally, in the abscesses which occur in prostatic hypertrophy it is often necessary to perform a prostatectomy.

CYSTITIS AND PYELITIS IN CHILDREN.—L. Langstein (*Therapeutische Monatshefte*, J. A. M. A.) urges the importance of examination of the urine whenever a child has fever of obscure origin. Restlessness, pallor, loss of appetite and general depression are often the only signs of bladder affection in an infant or older child. This comparatively latent cystitis may run into an acute and severe form, with colic pains. This should be suggested when an infant draws its legs up to its abdomen, screaming with pain. Such colics are not always referable to the gastrointestinal tract. Other symptoms are extreme pallor, rapid breathing and screaming when the child is made to sit up. More advanced cases simulate the clinical picture of severe suppurative intestinal catarrh as the children are so pale, their eyes so big, and they cry restlessly and hoarsely. Rigidity of the back of the neck has been noted in very severe cases, suggesting meningitis. Examination of the urine clears up the diagnosis; an acid re-

action speaks for colon bacillus cystitis. The reaction is alkaline with the pus cocci. In case of diphtheria bacillus cystitis, specific treatment should be instituted. Involvement of the kidney can generally be determined from the urine, and by the tenderness in the kidney region. Vomiting and diarrhea, independent of the food, frequently occur as the kidney becomes involved; convulsions and coma are also liable, death following with increasing fever. Cystitis is one of the most frequent affections in infancy, and affects girls almost exclusively, he says. Pyelitis in older girls is rarely diagnosed, but it occurs with comparative frequency. Sometimes not a single symptom points to the kidney, and the pallor and debility are ascribed to some constitutional disease. Colic-like pains radiating from the kidney region and a rise in temperature at long intervals, suggesting malaria, with apparently good health in the interim, are important symptoms of pyelitis in older children. It may simulate tuberculosis or typhoid fever in its course. Constipation and "catching cold" seem to be the principal factors in its etiology. Cleanliness of the genitals is of great importance in prophylaxis, and attendants should be taught to wash from the front backwards, never from the anus forward, to prevent washing germs from the anus into the urethra. He advises hexamethylenamin (10 c.c. in milk of a mixture of from 1 to 3 gm. hexamethylenamin in 100 gm. water, for an infant). Older children can take up to 1.5 gm. a day. He also advocates salol, giving an infant from 0.1 to 0.3 gm. four times a day, and older children 0.5 gm. four times a day. Alternation of these two drugs has proved most useful in his experience, with abundance of fluids to drink, and a light diet. Local treatment of the bladder is not of much use unless the process is restricted to the bladder which is the exception. If the cystitis and pyelitis are not treated, uremia, contracted kidney, etc., are liable to follow later.

SECONDARY ACUTE SYPHILITIC NEPHRITIS AND ITS TREATMENT BY MEANS OF MERCURY. I. Ferrand (*Gazette des hôpitaux*, No. 125, 1907) studied several cases of syphilitics who exhibited uraemic symptoms during the administration of mercury. For some time it has been a

question as to whether mercury should be given to the point of tolerance and whether or not mercurial poisoning need be feared in any case. A great deal of progress has been made of late years in the manner of administering mercury and rapid cures have been obtained by means of the subcutaneous or intramuscular injection of mercurial salts. Occasionally, a case of acute mercurial poisoning has been reported. One of the lesions of secondary syphilis is a secondary nephritis, which occurs usually about a year after the initial lesion and which runs a course similar to the nephritis of scarlet fever. They are characterized by an abundant albuminuria, sometimes reaching remarkable proportions. All the classical authors advise the use of mercury in such cases, the dose of which should be sufficient to neutralize the toxin which produces the nephritis. This is the classical rule, but recently, Widal, Siredey and others have fought against the idea of treating syphilitic nephritis by means of mercury.

The present author studied some cases of secondary syphilitic nephritis in Debove's Clinic. In three cases, uremia developed while the patients were under the full influence of mercury. Their urine had not increased in quantity, nor did it contain albumin. The principal symptom was an edema of the face and a uremic attack which disappeared rapidly when the mercury was suppressed. The amount of urine increased and the albumin diminished, although traces of it persisted for a long time before the urine became normal. It seemed that the diet did not have any effect upon the condition of the urine. It did not matter whether the patient was taking milk or a varied diet, with salt, or without; but as soon as the mercury was again given, the albumin increased in quantity. A chemical examination of the precipitated proteids in the urines of these patients revealed the fact that serum albumin, properly so called, constituted but one-tenth of the total weight of the precipitate. The other nine-tenths were composed of globulin and nucleo-albumin. In this precipitate, furthermore, the author was able to demonstrate the presence of mercury in the form of a proteid combination. A portion of the precipitate obtained by saturating the urine with magnesium sulphate was dried in

an oven and placed in a tube in which the organic material was destroyed by calcification. In the residue, mercury was distinctly demonstrated and with the aid of iodine vapor a red precipitate of mercuric biniodide was produced. There was, therefore, in this urinary albumin a combination of mercury eliminated through the kidney. The conclusion is that mercury sometimes aggravates acute secondary nephritis and that the abuse of mercury in the treatment of syphilis may undoubtedly lead to lesions in the kidney.

TREATMENT OF NASAL SYPHILIS.—After referring to the importance of a direct diagnosis of nasal syphilis, Dr. M. C. Morris states that to check promptly the progress of the disease, whose destructive ravages have such an important influence on the entire future life of the patient, internal treatment alone is not sufficient; local applications to the nose and inunctions of mercury to the body are necessary. The oleate of mercury should be applied to the thinner parts of the skin, in various parts of the body. The nasal organ should be cleared of the contained crusts, at least a half hour being taken for this one task. Using a soft-rubber bulb become soft they may be removed with angular forceps. A syringe or a Birmingham douche, the crusts should be thoroughly soaked with Dobell's solution. When the crusts have ter all the large crusts have disappeared the small crusts, and any dried secretion or mucus, may be removed with a cotton applicator. Then a careful search for any denuded or loosened bone should be made. After cocainizing, probe the nose and detach and extract any loosened bone. If the sequestrum is too large to remove, it may be crushed with forceps. After the above treatment the inflammation will rapidly subside. Any remaining particles of pus are destroyed by hydrogen peroxide, upon a cotton applicator. Then an application of 1 dram of silver nitrate to 1 ounce of water should be made, the whole ulcerated area being attacked. Complete the dressing with the insufflation of an iodoform mixture as follows: Morphine sulphate, 2 grs.; iodoform, 30 grs.; tannic acid, 30 grs.; bismuth subnitrate, 2 drs.; acacia, 2 drs.

The patient should be directed to syringe the nose con-

stantly—twenty to thirty times daily—with Dobell's solution, and should be treated daily for several days as above if a permanent cure is expected.

STUDIES ON THE CULTIVATION OF THE SPIROCHETA PALLIDA.—Levaditi and Intosh (*Annales de l'Institut Pasteur*, October 25, 1907, page 784) obtained cultures of the spirocheta pallada by placing sacs of colodion inoculated with the living spirocheta in the peritoneal cavity of monkeys. They first inoculated a monkey with the secretion from a human chancre, 15 days old, and rich in spirochetæ. They then took some of the secretion from the chancre and the lymphatic glands of this monkey and placed this in two sacs made of collodion containing human serum, previously heated to 60 degrees C. The sacs were sealed and placed in the peritoneum of a monkey, which was also inoculated by scarification with the secretion of the chancre of the first monkey. Believing that it would take the spirochetæ in the peritoneum the same length of time to develop as it would for the spirochetæ inoculated into the skin, the animal was killed when chancres appeared at the site of the scarifications. The peritoneum was then opened and the sacs removed. Its contents showed a large number of spirochetæ, which were living and motile. From these sacs they inoculated cultures in a similar way in rabbits, and by this method obtained a passage of the cultures through twelve animals. Unfortunately, the cultures were far from pure. They contained anærobic germs, which, perhaps, were favorable to the growth of the spirochetæ. One point, however, is to be noted: The spirochetæ thus cultivated were entirely innocuous. They did not produce any lesions whatever from being inoculated to monkeys.

ACETONEMIA AND ACETONURIA.

THE fact that acetone can occur in the urine in a great many other conditions besides glycosuria and diabetes is far from being well known; and yet acetonuria, whenever it occurs, must always be of clinical importance.

We do not propose to give more than the gist of all the work that has been done upon the subject; the four most important points which have been established are the following:—

1. A healthy man on ordinary mixed diet passes no clinically recognisable quantity of acetone in his urine.

2. A healthy man, if kept without food, or if given a diet containing absolutely no carbohydrate at all, begins to pass acetone in his urine almost as soon as the products of the last carbohydrate meal have been got rid of.

3. Acetone is only one of many allied products of abnormal metabolism; two other products of a similar nature being oxybutyric acid and diacetic acid. The accumulation of these substances in the body may give rise to symptoms which have been collectively termed "acidosis."

4. The source of the acetone and its allies is fat, and not carbohydrate nor proteid; at any rate, fat is their main source; and acidosis may occur whenever there is any condition when the patient is compelled to metabolize his fat to an excessive extent.

If a healthy man who voluntarily starves himself begins to pass acetone in his urine, it is little wonder that many patients who are involuntarily starved owing to the nature of their diseases do likewise. Children suffering from severe diarrhoea and vomiting; patients who vomit continually from anæmia, from gastric or duodenal ulcer, from pregnancy, and so forth, will often be found to have acetonuria. It does not follow, of course, that the amount of acetone and allied substances produced in these cases are sufficient to

cause actual symptoms of acidosis. The symptoms of the latter may be latent, but they may be added to those of the other troubles.

We need not enumerate all the conditions in which acetonuria may be found; we have indicated how much more common it is than might be expected; all we need is an easy test for its detection.

The oldest test recommended for the detection of acetone was the addition of iodine in an aqueous solution of potassium iodide, when on warming *iodoform* should be formed and should be recognized by its smell. This test, however, is only applicable as a rule when the clinician has an apparatus for distilling the urine; the acetone is very volatile, so that it comes over with the first few c.c. of water, and the iodoform test can then be applied with some ease to the concentrated solution of acetone so obtained. If the iodoform test is applied to urine without previous distillation it will seldom come off.

A simpler and more practical test is that with sodium nitroprusside and caustic soda. If two testtubes are taken, and into the first is put some perfectly normal urine, and into the second some urine known to contain acetone, and then to both about ten drops of caustic soda solution, followed by 20 drops of strong solution of sodium nitroprusside, are added, each will go a bright reddish-brown color owing to the presence of creatinin; if strong acetic acid be now added drop by drop, the red color due to the creatinin in the normal urine will entirely disappear, whereas the red color in the tube containing acetone will deepen into a dark claret-red color—so dark as to be almost impervious to light in some cases. It is this deepening of the red color which is the easiest test for acetone at present known; it is a very pretty test-tube reaction.

One important group of conditions in which acidosis is as yet little recognized, though it is of great importance, is in connection with anesthetics. The kind of anesthetic used matters little, but the length of time during which anesthesia is maintained matters much; hence with gas the acidosis is negligible, while with ether, chloroform, and the A. C. E.

mixture it is very far from being so. For some hours after a long anesthetic, acetone and its allies may be found in the stomach contents and in the urine; and recent work goes far to show that many of the bad symptoms that result from anesthetics are due, in part at least, to this acidosis. The condition known as delayed chloroform poisoning is attributed to it; and there can be no doubt that the excessive and persistent vomiting that may follow anesthetics is partly due to the acetone, and to the presence of acetone in the stomach. This well explains the wonderful relief that is to be obtained by simple lavage of the stomach in the worst cases; and seeing that the trouble is due to poisoning by organic acids, it is not surprising that the benefit of giving the patient a dilute solution of carbonate of soda to drink, or of using such a solution for the gastric lavage, is greater than that obtained when plain water is employed. Patients' lives have again and again been saved by the simple use of sodium carbonate in weak solution in this way.

We have not space to do more than indicate the kind of ways in which an examination of the urine for acetone may prove helpful in the treatment of different conditions. There is one further point, however, that we would lay stress upon here, and that is the great danger there is of suddenly cutting off the carbohydrates from the dietary of a patient with diabetes. Diabetic coma is directly due to poisoning by acetone or its allies. A diabetic patient is always liable to pass acetone; a healthy man is certain to pass acetone if he is starved of carbohydrates; how much more certainly a patient who has diabetes is to form increased, and possibly fatal, quantities of acetone and similar toxic products of metabolism if his carbohydrates are completely cut off! The amount of sugar in a diabetic urine is almost unimportant provided no acetone is present. It is much better that the patient should pass much sugar and no acetone, than that his sugar should be decreased at the expense of acetone formation and possibly fatal acidosis.—*The Hospital*.

THE AMERICAN JOURNAL OF UROLOGY

VOL. IV.

MAY, 1908.

No. 5

REMARKS UPON SYMPTOMATOLOGY, DIAGNOSIS, AND TREATMENT OF IMPACTED RENAL CALCULUS.

By F. M. JOHNSON, M. D., Boston.

Mr. President and Gentlemen:

The following case well illustrates something of the symptomatology of renal calculus, its diagnosis by ureteral catheterization, and its removal by nephrotomy.

Patient. Mrs. R.—married, aged 28. First visit February 16, 1907.

History. Family history was negative. Her personal history up to the year 1903 was a good one.

Present Illness. In 1893 had an attack of appendicitis. Operation followed. Then a hernia required a second operation. She has had no trouble at all for several years. Between eight and nine years ago there occurred an attack of pain in the right side, sharp and cutting in character, lasting about two hours. Not quite a year ago there was a repetition of this acute pain in the same place, and since that time, a dull, aching, dragging pain has been a constant factor on the right side over the region of the kidney. The pain was worse at night, and when she was lying down. There was no frequency of urination. The urine now and then caused a smarting sensation. Aside from the pain and local disturbances her general condition was of marked exhaustion and extreme nervousness.

Examination. Patient somewhat emaciated and anæmic. Skin very dark and yellowish, almost like the coloring from jaundice. Heart and lungs were negative. Genitalia and rectum were negative. On deep pressure the right kidney was tender. On bi-manual palpation the right kidney could

Read at the annual meeting of the American Urological Association.

be felt in normal position but was quite tender. Nothing abnormal could be made out about the kidney or the suprarenal body. Temperature showed a normal daily variation and at no time was there marked fever. Urine when passed was cloudy in its appearance. Examination of two specimens, one on February 24, 1907, and one on February 27, 1907, revealed the presence of many oxalate of lime crystals, some uric acid crystals and the organic detritus from a chronic catarrhal cystitis with some evidence of kidney involvement in a pus process.

The bladder was washed out with a warm boric acid solution, and then about four ounces of a hot argyrol solution—strength 35 per cent.—injected and allowed to remain as long as it could be retained. The effect was soothing. Bladder lavage continued at intervals for three weeks.

Cystoscopic examination. March 22d. The cystoscope was passed without difficulty. The bladder had been readily cleansed and the distilled water remained clear. The bladder was found to be in a comparatively healthy state. The left ureteral orifice was readily seen and appeared normal. Secreted at regular intervals, the urine emitted looked clear and of a natural color. The right ureteral orifice was small and congested; the blood vessels about it were in a like condition and it was located in a fold of membrane and could not be constantly detected. At normal intervals urine was emitted, but in appearance was puriform or milky.

Ureter Catheterization. Both ureters were catheterized with the Wappler-Brown cystoscope. No trouble at all in the passing of the catheter into the left kidney. Urine collected in test tube was clear and of normal color. Attempting to pass catheter into right ureter, I found it impossible to use the ordinary blunt pointed catheter and had to use one that was very slim and sharp pointed. The ureter was markedly sensitive and the passage of the catheter caused complaint of pain. The introduction was difficult, as the point of catheter seemed to meet with slight obstructions that required quite a little manipulation to overcome, as if there might be adhesions or hypertrophies present. The urine in test tube was cloudy, suggesting pus. The flow was an abundant one. The urinalysis follows:

	Right.	Left.
Crystals of uric acid gravel...	Few	Few
Red blood globules.....	Few	Fairly abundant
Pus corpuscles.....	Moderate with fat globules	Few
Convolved tubules.....	Moderate	Few
Straight collecting tubules....	Few	Few
Pelvis of kidney.....	Few	Few
Ureter	Moderate	Very few
Casts	None	None
Mucus	Moderate	Moderate
Fibrin	Present	Present

Chronic catarrhal pyelo-nephritis and ureteritis—Right.

Mild pyelo-nephritis—Left.

There were no connective tissue shreds.

TREATMENT—Calcined Magnesia Subnitrate of Bismuth, Sodium Bicarb. each Gm. 10. One-half a teaspoonful three times a day,—and four times a day urotropin.

During the month of March both ureters were catheterized four different times. The condition of left kidney steadily improved. The right kidney, however, made no improvement under treatment. There was no diminution in the amount of pus, the irritation was much more marked and the pain instead of decreasing, progressively increased and the dragging sensation was more keenly felt.

At this time the case presented the appearance of a surgical kidney with a marked pus process with pain and no general febrile disturbance. It was simply a question between two conditions: One a pus process existing alone, or a pus process existing in the presence of an impacted calculus. As in either case surgical interference seemed indicated, perhaps an X-ray examination at this time might have aided in clearing up the diagnosis, and it is a procedure which cannot be too strongly urged in all doubtful cases without regard to the patient's age, but as it would not influence the kind of treatment indicated, it was omitted.

Operation. April 4, 1907. Ether narcosis. Right lumbar nephrotomy. Kidney was found enlarged with a solid mass in its pelvis with fluctuation and under the capsule as though pus had followed capsule. When preliminary sutures were passed through the capsule there was a welling of pus from each stitch hole. An incision was made directly

through the center of the kidney down to the mass, which, after considerable difficulty, was removed in its entirety. There was remarkably little hemorrhage and the incised kidney was packed and fixed in the incision. Skin and fascia closed by through and through silk worm gut sutures.

The following illustrations give you an idea of the peculiar formation of the calculus:

Patient did remarkably well and the convalescence was uninterrupted. On April 7, the gauze packing was removed and a rubber drainage tube substituted. Daily irrigation and dressing. Temperature and pulse normal during whole illness. Tube was shortened from time to time until its final removal on April 19th. April 24th, wound very nearly healed and patient allowed to return home, but the daily dressings were continued. Tonic treatment added.

EXAMINATION OF THE MIXED URINE—April 24th.

Reaction—Acid.

Sp. gr.—1.010.

Color—Turbid.

Sediment—Granular.

Urea—4 grains to ounce.

Chlorides

Phosphates } Diminished.

Sulphates

Albumin—About 1-25 per cent.

Sugar—None.

Indican—Slight excess.

MICROSCOPICAL.

Crystals and concretions of calcium.

Oxalate (rare barrel shapes) fairly abundant.

Red blood globules—few.

Pus corpuscles with fat globules—numerous.

Convolutated tubules of kidney—few.

Straight collecting tubules—few.

Pelvis and ureter—moderate.

Bladder, from upper and middle layers—few to moderate from deep layers—few.

Vagina, from upper and middle layers—moderate.

Casts—none.

Connective tissue shreds—moderate.

Mucus—moderate, also cylindroids.

Other features—hæmatoidin and micro-organisms.

Diagnosis. Chronic suppurative nephritis with pyelitis and cystitis concretions.

Constitution—at present, badly impaired.

The suppurative process seems to be continued by the presence of constantly forming calcium oxalate crystals.

May 14th. Patient reported at office. Both ureters catheterized and kidneys injected with warm argyrol. Very little pain caused except during the passage of the catheter into the right kidney.

May 15th. Patient passed a comfortable night and all irritation had disappeared.

The wound has entirely closed and dressings no longer needed. Microscopical examinations of right and left urines showed a distinct improvement in all conditions. General health is better. Bladder washes are now given once a week, and lavage of the kidneys once a week.

May 21st. Second lavage. Pain less, no trouble at all following. Examination of the urines show another gain and the disappearance of the oxalate of lime crystals.

It seems only a fair conclusion that a good recovery will ensue.

The salient point of interest in cases of this kind would be the question of diagnosis. It is with regret that three other cases of like character could not be reported at this meeting, but the data at present writing are insufficient.

Tyson has stated that there is no drug known which will diminish albuminuria directly or indirectly, consequently we cannot look for aid among medicinal measures.

Difficulty of Diagnosis of Pyelo-nephritis—Tassin (*Tribune Médicale*) has called attention to the variability of the pain as a most striking feature. He describes three types of cases: *First*, pain like renal colic, the usual form; *second*, Cystalgia, which frequently leads to a false diagnosis of cystitis, and has led to vesical lavage being used for weeks without benefit; *third*, abdominal pain which may be in the kidney or any part of the ureter, or may radiate to the anus or thigh, or there may be reflex pain in the other kidney. He also mentions errors due to pain apparently in the kidney, occurring in disease of the bladder or ureter. Stress is laid on irritability of the bladder which is worse at night, "nocturnal pollokinria."

In the patient already mentioned, pain was worse at night, or when lying down, and felt over the region of or in the right kidney.

Other suggestions in diagnosis are those of Burkhardt

and O. Polano (*Münch. Med. Woch.* LIV. No. 1), who point out the possible value of pure oxygen in the diagnosis of kidney stones, and the use by Baer of indigo-carmin in testing for occlusion of the ureter.

Dr. Carl Beck, of New York, is a warm advocate of the Röntgen method in lithiasis of the urinary tract. Errors committed, according to his views, were of the individual, not the method. In his recent article, the results obtained were perfect. Surely skiagraphic technique has advanced, and whenever possible, should be used, bearing always in mind that with it alone is positive evidence conclusive.

CONCLUSIONS.

1. A positive diagnosis in all cases cannot be made from chemical and microscopical examinations of the urine alone.

2. A calculus of large size can exist for a long time without causing troublesome symptoms.

3. Renal lavage is demanded and is a measure of decided value, following nephrotomy.

4. When pyonephrosis exists in a kidney, unrelieved or made worse by lavage, it should be stopped and the causative element be found,—first by skiagraphic examination, and if this proves negative, by exploratory incision.

In the patient already mentioned, pain was worse at night.

5. Hot injections of argyrol appear to give more relief in these cases than any other local remedial agent hitherto employed.



FIG. 1.



FIG. 2.



FIG. 3.

PROSTATIC DISEASE IN THE DIABETIC.

By HEINRICH STERN, M. D., PH.D., New York.

THE entire medical literature contains no or but very meagre reference concerning prostatic disease in the diabetic. Yet, affections of the prostate occur more frequently in the diabetic than in the healthy individual and supervene at a decidedly earlier period of life.

The status prostaticus of the diabetic is commonly overlooked by the family physician, who is wont to ascribe certain difficulty in starting micturition, for instance, is often referred to a neurotic condition underlying the diabetes or symptoms of prostatic disease to the diabetic syndrome. The accompanying it, and the frequent desire to urinate, especially at night, is usually deemed *prima facie* evidence of the diabetic affection.

While the prostatic state, which is the consequence of hypertrophy of the gland, is generally not established in the otherwise normal individual before the sixtieth year of life, it may ensue in the diabetic ten, twenty and even thirty years earlier. A similarly early status prostaticus I have observed in a number of gouty persons, in anglo-sclerosis and in a few patients in whose urine large amounts of calcium oxalate had occurred for some time. This early prostatism in the diabetic may be the result of a gonorrheal prostatitis in which the sugar-laden urine participated in the perpetuation of the inflammatory processes and hence in the production of the hypertrophic changes of the gland.

However, many diabetics with chronic prostatitis or its sequence, hypertrophy of the gland, give no history at all of a gonorrheal invasion, or they were affected with gonorrhea at a youthful age and had made a prompt and complete recovery therefrom. In these instances, there stood either another infection at the foundation of the inflammatory process, or the pathological changes were evoked by the urinary

glucose directly, or by nutritive or secretory disturbances of the gland.

Of the non-gonorrheic infections of the prostate that with the colon bacillus is undoubtedly the most frequent; Virghi's assumption, however, that chronic prostatitis is always a mild toxic infection of the gland occasioned by the colon bacillus* is too absurd to merit serious consideration. A number of other micro-organisms may give rise to prostatic inflammation. Again, yeasts and fungi find a suitable soil for development in the diabetic urine even when this is still contained in the bladder. The frequent occurrence of cystitis, pyelonephritis, prostatitis and other inflammatory states of the genito-urinary tract in the diabetic may be occasionally due to the activity of these yeasts and fungi, and among the latter especially the sarcines. Again, it is probable that an inflammatory condition may be set up by the direct action of the urinary glucose upon the portions of the urinary tract which are traversed by it, and more particularly there where a urinary stagnation is apt to occur.

Although the great majority of prostatides appear of microbic origin, there occurs a certain proportion which, like the early prostatism of diabetics, may be the result of systemic influences. The influence of general disease and systemic deterioration upon the production of prostatic inflammation and degeneration is not sufficiently recognized and even denied by some. It is evident, however, that systemic disease and early decline may be reflected by the nutritive and secretory disturbances of the prostate gland, and that they may therefore be the progenitors of degenerative changes in the latter. I have shown elsewhere** that the prostate is rather a part of the sexual than the urinary apparatus, and that its secretion is of the utmost importance to fecundation—a fact which again evinces the dependence of prostatic energy upon the systemic state of health.

Prostatides of non-infectious causation, viz.: pathological conditions of the prostate which are often associated with angio-sclerosis, athyroidism, gout and diabetes mellitus, ter-

* Translated in *Zentralblatt f. innere Medizin*, 1907, No. 21.

** Heinrich Stern, "The Constitution of Normal Prostatic Secretion." *Am. Jour. of the Med. Sciences*, August, 1903.

minate mostly in a true hypertrophy of the entire gland. The early prostatic state in diabetics is much akin to the same condition consequential to senile hypertrophy of the prostate, but while in senile degeneration the enlargement may be occasionally limited to one or two lobes of the organ, the increase in size in early non-infectious hypertrophy usually involves all the three lobes of the gland if the patient remains alive sufficiently long. Again, in prostatic disease of infectious origin, partial, segmental enlargement of the gland is the rule.

The pre-senile prostatic state appears at the onset in the form of transitory seizures. Gradually the attacks diminish in severity and attain a certain degree of chronicity. The prostatic state becomes firmly established when it has assumed a definite chronic character. Vesical involvement is as frequently the sequel of the prostatic state in the young as it is of glandular degeneration in the aged.

Prostatic disease and diabetes may be associated as follows:

First. Prostatic disease of infectious origin may antedate the diabetic state.

Second. Senile hypertrophic changes in the prostate may exist prior to the outbreak of diabetic phenomena.

Third. Prostatic disease may be the result of the diabetic urine.

Fourth. The prostatic state may be the consequence of the self-same causes which give occasion to the diabetic deterioration or it may be a direct result of the latter.

The first and second eventualities have an actual interest for us in the present connection only to the extent that the supervening diabetic condition interferes with an improvement of the prostatic affection of microbic causation and tends to accentuate the untoward prostatic phenomena in the aged. In both eventualities prostatic affection and diabetes show no relationship as far as the origin of one from the other or their production by one common factor is concerned.

The third eventuality, the causation of prostatic disease through the agency of the sugar-containing urine, be it on account of the activity of yeast and fungi rapidly developing

in it or on account of the immediate operation of the glucose, represents more than a mere accidental occurrence. Chronic prostatitis prevails frequently in the diabetic, but as the affection does not always manifest itself by pronounced symptoms its existence is either overlooked or disregarded as a general rule. Again, an inflammatory condition of the prostate is very often overshadowed by a synchronous similar process in the bladder. While in the pertaining instances the vesicular involvement is usually the consequence of the prostatic disease, the cystitic phenomena may be very much in evidence and the changes in the prostate are not discerned. Thus, it happens that we speak of the frequent occurrence of cystitis in the diabetic and entirely forget that in the male patient there may be an enlarged gland which stands at the foundation of the cystic complication.

The following case-histories may serve as illustrations of the association of prostatic disease and diabetes belonging to this category.

Case I. A. M., 28 years old, born in U. S., single, merchant, consulted me first on December 16, 1903, on account of frequent and urgent micturition, bodily weakness, decline in weight, mental depression* and impaired memory. Family history negative. Patient had never gonorrhea nor syphilis. About two months ago there developed an irresistible desire to urinate on frequent occasions, especially during the night. During the past twenty-four hours he had urinated about fourteen times, as often during the night as during the day. The diurnal amount of urine was 1050 cc. His body weight had declined from 152 to 139½ pounds within the last eight weeks. The physical examination revealed nothing distinctly abnormal excepting the condition of the prostate. On palpating the gland per rectum it was found that it was quite tender and considerably enlarged. The expression urine was very turbid and contained numerous macroscopical shreds and flakes.

Analysis of urine. Twenty-four hours' amount 1050 cc.; spec. gravity 1026.5; transparency decidedly impaired; acidity 0.48 (Stern); odor highly aromatic; indican trace; chlorides slightly increased; phosphates increased; sul-

phates increased; albumin absent; glucose 1.66 per cent.; microscopical examination, calcium oxalate crystals, moderate number of epithelia from bladder (mostly upper layer), goodly number from prostate and some from the urethra. moderate number of old leucocytes (pus corpuscles).

The expression urine exhibited larger number of pus corpuscles, and epithelia from prostate and adjacent organs.

The case was diagnosed as one of neurogenous diabetes complicated by chronic prostatitis. The treatment was at once directed toward amelioration of the diabetic phenomena, especially the glycosuria. A week later the amount of the diurnal urine was 1200 cc. and it exhibited a slightly diminished turbidity, specific gravity of 1021, and contained 0.55 per cent. glucose. The expression urine, of which but a few drops could be secured, contained decidedly fewer pus corpuscles and other anatomical elements. The general condition showed marked improvement; frequency and urgency of micturition had abated.

On December 30th, two weeks after instituting anti-diabetic treatment, the twenty-four hours' urine amounted to about 1200 cc. with a spec. gravity of 1017.5; it contained no longer any glucose. The urine had normal transparency. The expression urine was slightly milky, showed no flakes or masses, and contained very few pus corpuscles and characteristic prostatic epithelia. The gland, when palpated per rectum, exhibited no undue tenderness and was considerably smaller in size. Frequent and imperative micturition had ceased, and there was no longer any call to urinate during the night. Two weeks more of the same diet brought about complete relief of the subjective phenomena of prostatic disease, an increase in body weight of six pounds, augmentation of vigor and resistance, and thorough amelioration of the mental depression.

Case II. J. R. P., 53 years old, born in U. S., physician, widower, no children, was referred to me by courtesy of Dr. Ferdinand C. Valentine on April 18th, 1903.

Family and personal history good; had gonorrhea thirty years ago which lasted two or three months; excepting a "nervous condition" of the bladder existing for the last few years and compelling him to urinate frequently during

the day and two or three times during the night, the patient had no physical trouble of any kind until September 8th, 1902. On that day, while in attendance at a labor case he was prevented from urinating for some time. Later, when he tried to micturate, he experienced great pain in the bladder and could pass but a few drops of urine. He felt very sick, but the pain subsided in some degree after hot applications. The patient was catheterized by a local physician and a large quantity of bloody urine was withdrawn. Thereafter he was catheterized four to five times daily. He was unable to void urine voluntarily. Local physician advised washing of the bladder with boric acid solution. Non-sterilized rubber tube, which patient attached to catheter, caused an infection during which the temperature rose to 103 degrees F. During the last six or seven months the patient has lost about fifty-five pounds. Appetite and digestion are good; the patient urinates every hour, day and night, large quantities of pale urine without the use of the catheter. The special examination made by Dr. Valentine showed the following:

Twenty-four hours' urine 4580 cc., acid reaction; spec. gravity 1011; turbid; slightly ammoniacal odor; moderately heavy sediment; albumin a trace; chlorides normal; phosphates increased; pus corpuscles moderate; sugar none; sulphates and urates normal; urea 22.8 grams; total solids 117.5 grams. The microscopical examination revealed the nature of the case: chronic catarrhal pyelo-nephritis with cystitis and chronic prostatitis with hypertrophy.

The expression urine confirmed aforementioned urinary diagnosis. It contained filaments with numerous pus corpuscles, epithelia from prostrate gland and duct, seminal vesicles, ejaculatory ducts and urethra, all in moderate number.

The residual urine, on the first examination amounted to 120 cc.; the prostate, on palpation, was found to be very high and bulging in the rectum.

Washing the bladder with sol. silver nitrate 1:5000, continued daily for one week, did not affect reduction of frequent and urgent micturition and of the diurnal amount of urine, but apparently caused an increase of residual urine,

and an aggravation of the local condition. The case being referred to me for investigation, I found about 4 per cent. glucose in his urine, the twenty-four hours' output of which was 3900 cc. A rigid anti-diabetic diet brought about a reduction of the twenty-four hours' urine to 2270 cc. within three days, a diminution of the residual urine to 84 cc., and the complete disappearance of the glucose. After one week of an anti-diabetic regimen, the diurnal amount of urine had decreased to 1520 cc., and the residual urine to 70 cc. The urine had become amber-colored and transparent. The number of micturitions had decreased from sixteen or seventeen to about seven during the entire twenty-four hours. If at all, the patient had now but one call to urinate during the night. The prostate gland had decidedly diminished in size. (During this period the patient's bladder was almost daily washed with a solution of silver nitrate 1:5000.)

Soon afterward, when the patient had ceased to pursue a strict anti-diabetic diet, the prostatic phenomena again manifested themselves. The urinary output had become augmented, the residual urine was increased, glucose and turbidity had reappeared, micturition had become more plentiful, and the patient had to rise twice or three times during the night. When the patient resorted again to the strict anti-diabetic regimen, the diabetic and prostatic phenomena subsided speedily.

The fourth eventuality of the connection of prostatic disease and diabetes—their origin from a common cause or the origin of prostatism from the diabetic state—is beyond question the most interesting. The prostatic state of this association has arisen on a purely systemic basis. In this, and in every other respect, it does not materially differ from the true status prostaticus of the aged. The main points at variance are that the prostatic hypertrophy occurring on the foundation of a constitutional disease or anomaly may be fully developed at a comparatively early period of life, and that the prostatic state resulting therefrom is usually associated with hypertrophic changes involving the entire prostate gland.

The prostatic enlargement in this form of prostatism, for which I propose the term CONSTITUTIONAL PROSTATISM, is,

like all other hypertrophic changes of the gland, in all probability the consequence of a more or less chronic inflammatory process which, however, does not start in the prostatic urethra but in the blood-vessels and connective tissue structures of the gland itself. It is primarily an affection of inadequate or perverted blood supply, due in some instances to local or general angiosclerosis, in others perhaps to certain irritating or toxic elements circulating in the blood current. In constitutional prostatism, the changes in the prostate are of similar character to those found in other glands. We have connective tissue or epithelial hyperplasia, or both, and in accordance with the preponderance of the former, more or less atrophic changes in the far-advanced instances of the affection.

Diabetes, like some other abnormal systemic state, may be the cause or precursor of constitutional prostatism. The two conditions are frequently associated, but the prostatism is generally overshadowed by the diabetic phenomena, and it is nearly always overlooked on account of a certain similarity of its syndrome and that of diabetes, and of its occurrence at a rather early period of life.

The following case-history will give a fair illustration of the concurrence of constitutional prostatism and diabetes:

J. C. F., 32 years old, born in U. S., farmer, single, came under my observation in April, 1905. Family history good. Patient never had any venereal disease. In June, 1904, the symptoms of diabetes supervened. Very soon afterward those of prostatic disease made their appearance. The local physician, suspecting diabetes, did not recognize the presence of the prostatic affection. Without a physical examination of the prostate, a microscopical examination of the urine and the expression urine, and the securing of residual urine, it was well-nigh impossible to discern prostatic disease, for many of the symptoms displayed by the patient pointed as much to the diabetic as to the prostatic state. There were the frequent micturition during the day as well as the night, the sexual impotence and the train of nervous symptoms common to both conditions. The patient had lost about fifty pounds in the past ten months and presented the picture of premature old age.

For brevity's sake I abstain from recounting the physical findings, which are of no especial interest to the present consideration. The heart appeared hypertrophic with a distinct mitral systolic murmur and accentuation of the aortic diastolic sound. The blood pressure, ascertained over the radial artery by Potain's instrument, amounted to 220 gm. hy. The superficial veins of the thorax, the long and short saphenous veins and the hemorrhoidal plexus were abnormally engorged. There was a distinct tumefaction, quite painful on deep pressure, in the region of the pancreas. The liver extended somewhat below the arch of the ribs and its margin felt flabby on palpation. The inguinal glands were indurated. The prostate was much enlarged and its palpable portions appeared rather hard and uneven on the surfaces. The residual urine amounted to 110 cc.

The microscopical examination of the urine and that of the expression urine left no doubt as to the presence of inflammation and degeneration of the prostate and of chronic cystitis.

The treatment directed toward amelioration of the diabetic symptoms also afforded relief of the subjective prostatic phenomena. The degenerative process in the prostate and the inflammatory state of the bladder seemed to have come to a temporary standstill. The pus corpuscles and the various kind of epithelia in the urine and expression urine became markedly diminished, the ammonium contents of the urine became decreased and an acid reaction was present on numerous occasions. At the period of the greatest general improvement the residual urine did not exceed 25 or 30 cc., and the prostate gland seemed to be softer on palpation. Later on, the prostate caused very little discomfort even then when the diabetic deterioration had made very pronounced inroads.

The patient succumbed to the diabetic deterioration in December, 1907. The direct cause of death were gangrenous phlegmons over the course of the saphenous veins which were found engorged on the occasion of my first examination of the patient. To recapitulate:

First. Prostatic disease in the diabetic is commonly over-

looked by the family physician, who is wont to ascribe certain symptoms of the former to the diabetic syndrome.

Second. A prostatic state may ensue in the diabetic ten, twenty and more years earlier than in the normal individual.

Third. Early prostatism in the diabetic may be the result of gonorrheal prostatitis in which the sugar-laden urine participated in the perpetuation of the inflammatory process, or it may be due to another infection, or the pathological changes in the gland were evoked by the direct action of the urinary glucose, its yeasts and fungi, or, finally, nutritive or secretory disturbances of the gland stood at its foundation.

Fourth. The early prostatic state in diabetics is much akin to the same condition consequential to senile hypertrophy, excepting that in early non-infectious hypertrophy all three lobes of the glands are usually involved.

Fifth. The pre-senile prostatic state in the diabetic appears at the onset in the form of transitory seizures. Gradually the attacks diminish in severity and attain a certain degree of chronicity.

Sixth. Prostatic disease of infectious origin may antedate the diabetic state; senile hypertrophic changes in the prostate may exist prior to the outbreak of diabetic phenomena; prostatic disease may be the result of the diabetic urine; the prostatic state may be the consequence of the self-same causes which give occasion to the diabetic deterioration or it may be a direct result of the latter.

Seventh. Constitutional prostatism, the form of chronic prostatic disease due to systemic disorder or decline, is probably the mediate consequence of an inflammatory process starting in the blood vessels and connective-tissue structures of the gland itself.

Eighth. The changes in the prostate in constitutional prostatism are of similar character as those found in other organs of the affected individual.

Ninth. Unless anti-diabetic treatment is applied prostatic disease in the diabetic, in spite of all local therapy, will not improve.

THE TREATMENT OF MOVABLE KIDNEY.

By DR. STANISLAS METROVITCH, Odessa, Russia.

THE two most generally applied treatments to combat movable kidney are belts and nephrorrhaphy. When choosing between these two methods of treatment, it is customary to adopt the principle that the belt should be tried first before resorting to surgical measures.

The result that one wishes to obtain by treatment with abdominal belts and supports is to procure as near an absolute fixation of the kidney in its anatomical position as possible, or, at any rate, to restrict the mobility of the kidney. This is obtained by pressure over the abdominal walls so that the intra-abdominal pressure is increased, whereby a change in the position of the abdominal viscera is prevented. The pressure should combine an inward and at the same time an upward pressure in order to retain the kidney in its anatomical site.

The number of belts and supports which are supposed to effect most effectively this result is becoming practically endless. In the Royal Surgical Clinic at Halle, the belt consists of a linen binder rendered more resistant by metallic stays. By using such a belt the affection in question is not infrequently favorably influenced and, in some cases, I have known the patient to recover completely, while in others, the symptoms were considerably diminished.

These belts, on the other hand, have many drawbacks, because they become easily displaced, so that the kidney, in spite of the belt, is not retained in its normal position. It must also be admitted that an actual cure is seldom the outcome of wearing belts, no matter what their construction may be, and, as they must be continually worn, they become a great nuisance and obstacle to those who are obliged to work, and, for this reason, in my opinion, they are only to be recommended in mild cases of movable kidney. That the use of a binder may result in a cure is made evident by the following case: The patient, a male, complained of pain

extending from the costal border down into the abdomen. By examination a distinct tumor could be felt directly under the costal border, which could be pushed upwards and was only slightly painful upon bi-manual pressure. The diagnosis of movable kidney was easily made. By wearing a belt with a pad pressing the kidney into place, all symptoms were quickly done away with, but, as the belt was uncomfortable and hindered him at his trade as a carpenter, he ceased wearing it after eighteen months, and has now for three years attended to his work without a belt. When the patient was examined a short time ago, the kidney was found fixed securely in place. Consequently, the renal attachments, on account of the kidney having been retained in its normal position by the binder, the ligaments were not pulled on and had become strengthened to such an extent that they retained the organ and displacement was no longer possible.

As to the surgical treatment it may be said, that, although great improvement has been made in the technique during the last few years, we are as yet without an absolutely perfect procedure. The first operative procedure for movable kidney was carried out by Keppler in a case presenting extremely serious pathologic symptoms, so that he advised a removal of the organ. This procedure has found few imitators, because it is in absolute contradiction with one of the first principles of surgery, namely, that every sound organ which still fulfills its functions, must be preserved, and this is usually the case with a movable kidney. Then, again, there is extreme danger should the other kidney be diseased, or perchance be completely wanting, and, as is well known, congenital absence of one kidney is oftentimes difficult to ascertain unless catheterism of the ureters is resorted to.

In order to do away with the disagreeable symptoms produced by movable kidney, Hahn conceived the idea of stitching the kidney in place and thus prevent any further possibility of displacement. In his first operation he simply stitched the capsula adiposa to the borders of the wound, but this operation proved very unsatisfactory because the kidney soon became loosened and the patient suffered as before. And not alone did their old symptoms recur, but these were often worse than before the operation. Consequently, Hahn

changed his technique so as to not only include the fatty capsule in the sutures, but also the fibrous capsule as well after having split the fatty capsule.

As to the point to which the kidney should be stitched, Hahn believed that it was proper to anchor the kidney as far down as possible, in other words, at the lowest point of its mobility. By this he was desirous of obtaining as a result that traction on that point after it had become completely adherent should be diminished when the patient was in the erect posture, and thus pulling on the kidney itself would be avoided, admitting, of course, that it might obtain a point of solid support by this manner of fixation. It having been remarked that a kidney when fixed in an abnormal anatomical situation, even if this be very low, is not apt to be productive of any symptoms, caused Hahn to look upon fixation of the lower limit of mobility as most desirable.

But even this modification of nephrorraphy resulted in quite a percentage of failures, inasmuch as the symptoms were only partially done away with and also because the kidney became loose again and thus the former status of affairs was present. In order to cope with this, Rosenberger, basing his technique on the fact that, where two serous surfaces come in contact, they form solid adhesions between each other, decided to perform intraperitoneal fixation of the kidney, but this procedure has met with little favor inasmuch as an intraperitoneal operation exposes the patient to far greater risks than an extraperitoneal one. For this reason, surgeons endeavored to improve Hahn's technique.

Ridel first pushed the kidney into its normal position before stitching it and then, for the purpose of creating extensive granulations which would result in good adhesions, he introduced a solution of sublimate containing bismuth into the wound and then inserted three strips of iodoform gauze between the kidney and the surrounding structures. This dressing he allowed to remain in the wound for four weeks, at the end of which time he removed the gauze and sutured the incision.

Bassini proceeded to attach the kidney itself and for this purpose three or four sutures were passed through the renal

parenchyma. After splitting open the fatty and fibrous capsules, the latter being peeled off from the kidney to a certain extent, the operation was then terminated. Many surgeons have neglected doing decortication of the kidney, being satisfied by simply placing through-and-through sutures in the renal parenchyma and uniting it to the muscles.

After a time more and more value was attributed to fixation of the kidney in its normal situation, and following Guyon's teachings, Israel hitched the kidney to the twelfth rib. De Paoli and Duret have even performed subperiosteal resection of the last rib in order to be able to better meet this requirement.

The technique of introducing the sutures directly into the renal parenchyma was soon generally adopted and this was quite justifiable, because, as has been amply proven by many cases, this technique results in a solid adhesion of the kidney to the surrounding structures, a fact which has also been proven experimentally in animals, more particularly by Tuffier, Vaneufrille, Albarran and others. That a solid and tense connective tissue is formed, has been frequently observed when making a postmortem examination on subjects who died shortly after this operation from some inter-current disease, or, in other cases where, on account of some other lesion, a laparotomy has been resorted to.

Although the technique above described has given such excellent results as far as complete recovery is concerned, some surgeons are still unsatisfied with this technique. The reason for the antipathy shown by certain operators is to be found in the fact that, by the above mentioned operative procedure, the formation of dense sclerotic tissue results at that point which has been freed from the fibrous capsule, as well as along the surface of the kidney into the renal parenchyma. According to the researches carried out by Le Cuziat the renal parenchyma undergoes sclerotic changes around the sutures to the extent of from three to four millimetres and, consequently, from this fact, a certain portion of the renal parenchyma is functionally lost and it cannot be denied that, owing to this loss, the function of the kidney involved is to a certain extent interfered with.

By still changing the technique of the operation one en-

deavored to do away with the above mentioned drawbacks. Albarran suggested a procedure for the prevention of the formation of sclerotic tissue which follows renal decortication. He omits splitting the fibrous capsule and merely places a few drops of a strong solution of carbolic acid over the renal surface in order to set up the formation of active granulation tissue. For fixation he employs three catgut sutures carried directly through the substance of the kidney. Albarran asserts that, in this manner, he has obtained some very favorable results, just as good as if the fibrous capsule had been split. In contrast with the position taken by Albarran, Obalinski is of the opinion that it is poor practise to introduce the sutures into the renal parenchyma because he is desirous of avoiding the production of the sclerotic process within the kidney. He proceeds as follows: A double trapped door incision is made in the fibrous capsule, the lengths running along the outer borders of the kidney, and he then stitches these flaps to the inner aspect of the lumbar region, three sutures being inserted into each flap. By this technique the surface of the kidney is brought into close contact with the walls and the sutures do not involve the renal parenchyma.

Biran is of the opinion, this being based on his personal researches made on rabbits and dogs, that one can dispense with intraparenchymatous sutures, as well as splitting the fibrous capsule and still the fixation will be quite as firm and lasting. He, therefore, has again resorted to the technique first described by Hahn.

In a technique similar to that advocated by Obalinski, Joannesco has, by his technique, endeavored to do away with the sclerotic tissue changes arising in the renal parenchyma. He carries two silver wire sutures through the substance of the kidney with the intention of fixation of the organ for a limited time and these are removed at the end of ten days. According to his statements the adhesions resulting become so solid that, if the patient is kept quiet in bed, the kidney will remain in place and after the patient is up and about will not become loosened. After the silver wire sutures have been removed, all possibility of sclerotic tissue formation is done away with, so that this process is restricted to a very

limited extent. Joannesco lays special stress on carrying the sutures through both poles of the kidney in order that the fixation may take place the entire length of the organ and also because, by this means, dislocation is rendered impossible.

It, however, cannot be denied that one can only expect but very uncertain results from all these various techniques where the renal parenchyma is not included in the sutures. On the other hand, the sclerotic tissue formation which is to be feared in consequence of the intraparenchymatous sutures are, in my opinion, so limited and so unimportant, that an injury to the functional value of the kidney in consequence is scarcely to be feared and has, as far as I am aware and my personal observation goes, not been proven as yet. For this reason and because sutures passed through the renal parenchyma are productive of much better results, the following technique employed by von Bramann may be advocated. The patient is placed on the side opposite to the one to be operated on. The skin incision is made along the border of the sacro-lumbar muscle from the twelfth rib to the iliac crest; consequently it is carried vertically downward and measures from twelve to fifteen centimetres in length. After incising the skin and latissimus dorsi the anterior and dorsal reflection of the sacro-lumbar fascia is split and the muscle is retracted towards the spine. The lumbar artery is cut and ligated while its accompanying nerve is retracted to the side. The quadratus lumborum is then incised longitudinally, likewise the transverse fascia, then the fibrous leaf of the peritoneum and down until the fatty capsule of the kidney is reached. An assistant then should push the kidney from below upwards into its normal position under the twelfth, eleventh and tenth rib. After splitting the fatty capsule the fibrous capsule is incised along the convex border of the kidney, beginning at the lower pole to the extent of from five to six centimetres and is then decorticated to the extent of about a centimetre on each side. Three silk sutures are then carried through the capsula propria and deeply into the renal parenchyma on one side and then through the periosteum of the twelfth rib. By tightening the sutures the kidney will be found to be placed in its normal position. In my latter operations I have united the kidney by four silk

sutures. Of these sutures the first is carried around the twelfth rib, the second only includes the periosteum of the latter, while the other two are inserted in the muscles and merely act as supports for the two former. After the kidney is stitched in place the fatty capsule is closed by a couple of catgut sutures and then the cutaneous incision is closed with silk. When closing the external incision it is well to pass one or two sutures deeply down into the fatty capsule.

In my earlier operations the lower angle of the wound was left open and plugged with a strip of iodoform gauze with the hope of obtaining a further granulation tissue. The gauze was taken out at the end of six days. However, during the last few years, I have done away with the iodoform gauze packing and closed the wound completely.

The suture material employed for fixation of the kidney has been usually silk. However, when this is employed, a fistula may sometimes form, which will only close after the sutures have been expelled. I am only aware of this occurrence in four cases and in these the sutures were eliminated within a year after the operation. I must point out, however, that these cases belonged to the group in which iodoform gauze was used and since this has been eliminated, the occurrence of fistula has ceased.

In order to avoid this disagreeable occurrence, Kuester and many other surgeons have advised the use of silver wire, but I believe that the latter should not be used, because it not only cuts through the renal parenchyma with great ease, thereby causing further damage to the renal substance, but like silk it will also occasionally give rise to a fistula and therefore must be removed later on. The use of catgut I cannot advocate, because I do not believe that its asepsis can be relied upon.

An important point is the after treatment. I believe that these patients should remain at least four weeks in bed, because if they get up too soon, the fresh adhesions are pulled upon and may even give way. Tillmanns goes so far as to oblige his patients to remain in bed from six to seven weeks, as he esteems that that length of time is necessary to effect a complete and stable formation of adhesions. The use of an abdominal binder to prevent the occurrence of hernia in the incision is only necessary in a few cases.

ON PYURIA.

By DR. FELIX LEGUEU, Surgeon to the Necker Hospital,
Paris, France.

PATIENTS afflicted with pyuria consult a physician for three different reasons, namely, either because they are disturbed on account of their cloudy urine, or they are subjects, as they believe, of albuminuria, or else they complain of disturbances in the micturition, these being frequency and pain.

The presence of pus in the urine is made evident by various signs. Purulent filaments, or purulent strips usually come from the urethra. These filaments, which are more or less elongated, are composed of agglomerated leucocytes held in a magma of mucin and epithelial cells. Instead of the filaments or strips, one may find a fluffy cloud, which sinks to the bottom of the test tube when left in repose, or the urine may be completely cloudy with an increase in its quantity, in which case one is dealing with what is termed a cloudy polyuria.

This cloudy polyuria indicates absolutely its renal origin. The deposit which exists at the bottom of the tube may have a viscid and gluey consistency due to an ammoniacal transformation of the urine, which may arise in the urinary tract, or by contact with the air. This ammoniacal change causes the leucocytes to disappear, a point which should never be lost sight of.

Various causes of error may arise, leading one to believe that the pus is not present. These causes are, in the first place, a spermatorrhea which may pollute the last drops of urine, or, the filaments which are in no manner composed of pus cells, but which contain epithelial cells. Chyluria, which alternates with hematuria, may also lead to confusion. In this case, one is dealing with a tropical disease which is unknown in temperate regions.

Let me still mention *spontaneous fermentation of the*

urine. Here the physician should be careful; he should order the patient to urinate in his presence, otherwise, the urine brought to him will be cloudy from the fermentation taking place in the bottle and thus may be a potent cause of error.

Another cause for great caution is bacteriuria. In this case the urine contains bacteria, which are eliminated during an infectious disease by way of the urinary tract; they then become colonized in the urine and form what may be termed a bacterial mud which is rendered evident by microscopic examination. Under these circumstances the urine is not only cloudy, but it gives rise to a very strong and disagreeable odor. The urinary sediments are what are most liable to give rise to mistakes. One should always question the patient as to whether the urine is limpid at the time of emission, and only gives rise to a deposit after it is cool in which case one is dealing with urates; or if the urine is cloudy at the time of micturition, in which case one is probably dealing with the phosphates.

The urates dissolve by heat; a drop of acid will dissolve the phosphates in the test tube and one should never neglect going through with this series of reactions.

A phosphatic urine closely resembles purulent urine and a drop of acid will immediately clear up a phosphatic urine, while it will render a purulent urine cloudy. It is this very cloudiness of a purulent urine arising after acid has been added which has caused the mistake of considering it an albuminous urine, because the treatment is different. Now, although a milk diet is often indicated in cases of albuminous urine, it always gives rise to disturbances in cases of pyuria by weakening the patient.

Now, if pus is found, what is its origin? Filaments generally indicate a urethral or prostatic origin and the question then arises whether they come from the anterior or posterior urethra. The patient should be made to urinate in three glasses, the first jet of urine being received in the first glass, the middle portion in the second glass and the last portion in the third glass.

Other diagnostic means may be resorted to. For example,

the instillation of a few drops of a one in one thousand solution of methylene blue may be placed in the anterior urethra; this solution stains all the filaments coming from the anterior urethra. If, afterwards, unstained filaments are voided, proof is obtained that the latter come from the posterior urethra. One may also carefully irrigate the anterior urethra with a catheter and after this, if the patient, upon micturition, presents filaments in the urine, it is evident that they come from the posterior urethra.

An initial pyuria with a large mass of pus indicates usually a suppurating prostatitis which has opened into the urethra. When the suppuration is complete two important facts must be ascertained, namely, the quantity of pus voided and its intermittence. Generally speaking, the bladder never gives rise to a marked suppuration. If the deposit of pus is abundant, it is practically certain that it comes from the kidney and indicates the presence of a pyonephrosis, which, for that matter, may extend over years. The intermittence is another characteristic of renal pyuria; a bladder generally suppurates continuously when the pus is from this source. When intermittency exists this phenomena signifies an occlusion of the ureter and this latter condition may give rise to pain, on account of increased intra-renal tension, and fever. There is one condition where an intermittence of the pyuria may be the result of a vesical lesion; I refer to a perivesical collection of pus which has opened into the bladder as occurs in some cases of salpingitis.

An important point to be known is that renal suppuration is often accompanied by vesical symptoms, namely, pain and frequency of micturition. Now, how should one find out if it is the kidney or the bladder which is the seat of the trouble? When the bladder is involved, the deposit is not thick and is constant; and still more the bladder is sensitive when explored, while segregation of the urine shows an equal quantity of pus coming from each side of the bladder. When the kidney is diseased, the bladder is painless when explored, either by palpation or by distension, the ureter is increased in size, puffed up and painful at its point of entrance into the bladder. Ureteral colic may occur.

The cystoscope shows a difference between the two ureteral orifices; the one on the side of the lesion is in a hyperemic condition, and what is more, the ureteral ejaculation is clear on the healthy side and cloudy on the diseased side. Catheterism of the ureter and segregation of the urine will confirm the diagnosis. The next question is whether one or both kidneys are diseased. A pathologic change in both kidneys is made evident by the abundance of the polyuria, the general bad condition of the patient and a persistent elevation of temperature in spite of the use of a permanent catheter. Cystoscopy, ureteral catheterism and segregation of the urine will show with certainty whether or not both kidneys are involved.

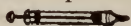
The cause of the disease will occasionally throw some light on the question. A suppuration is set up when it follows gonorrhea or the passage of the catheter, and, under these circumstances, all possibility of tuberculosis should be set aside. The possibility of tuberculosis should be suspected when nothing has been done to provoke a suppurative process and when the patient has never suffered from gonorrhea. All this is true in the case of males, but in women, it is different. There are spontaneous infections in women which are not tuberculous. The demonstration of the tuberculous nature of the lesion is made by a bacteriologic examination, inoculation of guinea pigs and also, perhaps, by the deteriorated aspect of the leucocytes, the nuclei of which stain with difficulty in tuberculosis.

The treatment should be that of the etiologic factor. Nevertheless, pyuria should receive a treatment directed against it and in mild renal infections internal medication may be followed by success. In the first place, as I have already said, an exclusive milk diet is to be proscribed absolutely. The patients should be given a diet composed of eggs, vegetables, fruits and fresh meat, all spices being avoided. Drinks are excellent for the renal irrigation which they produce; plain water or that from the springs of Vittel or Contrexéville is to be particularly recommended.

The balsams may be utilized; santal, or better still arrheol, is particularly useful. Copai should be stricken from the list

of remedial agents on account of its disastrous action on the stomach. Harlem oil may be prescribed in the proportion of 50 drops in 200 c. c. of syrup and of this from three to four soupsoonsful may be placed in a pint or so of a diuretic infusion to be taken during the day. Antiseptics, such as salol, are of doubtful value. Benzoate of soda in the dose of three grams daily is better and the same may be said of urotropin or helmitol.

When the bladder is the seat of the trouble, instillations or irrigations are indicated. In cases of large collections of pus in the kidney giving rise to severe pyuria, it is urgent to have recourse to the usual operative interferences.



THE EFFECT OF SALICYLIC ACID UPON THE URINARY ORGANS. GMEINER (*Folia Urologica*, March, 1908), in an elaborate investigation of the effect of a modified salicylic acid preparation upon the kidneys, with a report of twelve experiments on dogs and horses, concludes that salicylic acid and its derivatives constantly produce, both in men and in animals, symptoms of irritation in the kidney and the excretory urinary passages, which give rise to a desquamation of the epithelial lining. The continued use of salicylic preparations is without doubt fraught with serious danger to the animal organism. Of all the salicylic preparations now in use novaspirin is the least harmful to the animal organism. Walther reached the latter conclusion (*Inaugural Dissertation*, Giessen, 1907). The present author found that a moderate use of salicylate of soda gave rise to an albuminuria and the presence of epithelia in the urine within twenty-four hours. On the other hand, much larger amounts of novaspirin could be given to domestic animals without producing any irritative symptoms in the kidney.

A PLEA FOR THE PROMPT USE OF RETROGRADE CATHETERIZATION IN THE SURGICAL TREATMENT OF IMPASSABLE STRICTURE OF THE MALE URETHRA.*

By ERNST JONAS, M. D., St. Louis.

SINCE the introduction of asepsis into surgery, the gradual improvement in results has depended on improvement in technique, but still more on the timeliness of surgical interference. Surgeons and gradually the laity recognized that the salvation of the patient lay in timely operations. Take appendicitis and gall-stone operations, for example. As long as we operated only when the condition of the case absolutely demanded surgical interference, for perforation of a gangrenous appendix, for instance, or for stone in the common duct with pancreatitis, or for perforation of a gangrenous gall-bladder, the mortality was appalling and patients justly considered such operations as almost certainly fatal. That era is now past. Physicians and surgeons have learned to recognize the pathological conditions of these organs at such early stages, that at present, in comparison with the number of cases operated on for appendix and gall-bladder troubles, we but seldom see cases so far advanced. We have learned to prevent the occurrence of these dangerous conditions, we have by such timely interference made the dangers of operation almost nil, preventing at the same time secondary complications no longer curable by an otherwise successful operation.

Not in every field of surgery, however, has a like rapid progress been made. In the methods of treating benign strictures of the urethra there has been, in my opinion, an unjustifiable lack of progress. Searching for possible reasons, I have come to the conclusion that the want of surgical training in a good many of the older genito-urinary surgeons

* Read before the Urologic Section of the St. Louis Medical Society, March 17, 1908.

and the patient's dread of any operation on the penis, have been the main obstacles to the furtherance of surgical principles in this field. Since the present generation of genito-urinary surgeons, however, performs operations as extensive and as dangerous as those of any other branch of surgery, there is, I believe, no reason why the old, so called conservative, method of treatment of strictures of the male urethra should not be abandoned in favor of the more surgical procedure. The patient's fear of an operation on the penis can usually be easily overcome, if it is explained with proper tact, that the operative treatment results in more permanent benefit than the old method of treatment with bougies.

To my mind, the treatment of strictures with sounds should be reserved for strictures of moderate size, frequently called of large caliber. For strictures of small caliber and strictures admitting only a filiform bougie, urethrotomy is better, preferably external urethrotomy (except in strictures of the pendulous urethra, when internal urethrotomy may be chosen). The dangers of long continued introductions of bougies are not to be underestimated, and this kind of treatment needs such frequent repetition, that patients so treated virtually remain patients for life.

From my experience with this so called conservative method of dealing with strictures of the urethra, as compared with external urethrotomy, I am heartily in favor of urethrotomy in all cases in which the urethra cannot very easily be kept open by bougies, or in cases where there is pain or annoying nervous symptoms, even when it is possible to pass a sound of normal size. In order to obtain good permanent results, it is of course advisable to completely excise all scar-tissue. Only then is there hope for a fairly complete cure. It is my belief that there is much less tendency for new contracture after complete removal of the old scar-tissue than after the most complete dilatation with bougies. Even after thorough urethrotomy, however, it is advisable to test the urethra by the occasional introduction of a good sized bougie.

In cases of impassable stricture of the male urethra, there is much less difference of opinion as to the method of treatment. All physicians agree that in this class of cases opera-

tive interference is the only method of treatment advisable, even in those cases of pervious stricture in which the patient is yet able, with more or less difficulty, to empty the bladder. Objection might be made that in these cases only want of skill interferes with the successful introduction of a filiform bougie. Usually, however, when a case of this kind comes under our care, there have already been repeated attempts made to pass a sound through the stricture, resulting in numerous false passages. These latter prevent the successful introduction of a filiform bougie.

Simple as is the operation of external perineal urethrotomy with guide, so difficult may it be when undertaken of necessity without guide. Besides, at this stage the patient's bladder and kidneys have often suffered permanent damage. In these cases, in which it is impossible to pass a filiform bougie through the stricture, an attempt may be made to find the proximal opening from the perineal incision. Occasionally the surgeon may be more fortunate in his search than can reasonably be expected, and may find the proximal end of the urethra easily. It is not advisable, in my opinion, however, to make the search a prolonged one, because frequently the exceedingly small opening in the strictured portion of the urethra can be found only with the greatest difficulty, if at all, and in the search a great amount of tissue is destroyed. If, therefore, after a reasonable attempt, the posterior end of the urethra is not found, not much time should be spent looking for it. The bladder should be opened above the pubis, and a sound passed through the bladder to the perineum (retrograde catheterization). The point of this sound acts as a guide and makes incision of the urethra easy. With this guide, it will then be possible to slit open the urethra. The wound of the bladder and the abdominal incision is closed at once, the prevesical tissue being safeguarded by the introduction of a small cigarette or tubular drain.

I have lately operated on two cases of impassable stricture of the male urethra, using this method of retrograde catheterization, without a long hunt for the proximal end of the urethral canal. Both patients made a quick and complete recovery. In one case there was no leakage from the ab-

dominal incision at all; in the other case, just a moderate amount for a very few days. In each case, a catheter was introduced from the wound into the bladder, and kept there for three days. After this the catheter was passed through the entire length of the urethra into the bladder, and the wound was permitted to heal around the catheter. The perineal wound closed in one case in three, in the other in four weeks after the operation.

The arguments for retrograde catheterization in the treatment of impassable stricture of the urethra hold good also for rupture of the urethra. If the proximal end of the urethra is not easily found, retrograde catheterization should be employed and should take the place of the Cox operation.

To repeat in brief—I desire to emphasize the advisability of early external urethrotomy in benign strictures of the male urethra, and to urge the prompt use of retrograde catheterization in impassable strictures.



PROSTATECTOMY AND BLADDER STONE.

By REGINALD HARRISON, F. R. C. S., Professor Royal College of Surgeons, England. (*The Hospital*).

RECENT progress in the treatment of the enlarged prostate by supra-pubic prostatectomy, and the experience which is rapidly extending and accumulating, will be found on analysis to throw considerable light on the prevention and treatment of stone in the bladder, more especially in reference to its recurrent form. This association of stone in elderly adults is a common one. More than half the males I have operated upon, over sixty years of age (not less than 500), for stone in the bladder had also some degree of prostatic hypertrophy. Enlargement of the prostate leads up to calculus formation in at least three ways:

1. By the trapping of small calculi and gravel of renal origin on their way outwards, and detaining them in the bladder, where they form nuclei for further increment by Rainey's process of molecular coalescence.
2. By providing a more or less suitable and permanent

reservoir above the obstructing gland for undischageable urine, which is liable to undergo ammoniacal and other decomposition, and thus to supply one or more elements for the production of a calculus, probably a phosphatic one.

3. By leading to the formation of independent and non-contractile sacs and pouches within the bladder which provide additional receptacles for decomposing urine.

Trapping kidney stones or crystalline concretions is the common origin of primary bladder stones. In the latter position they may attain considerable dimensions, and often present on section all the commoner varieties of stone that the urinary organs are capable of forming. Such trapping not infrequently happens in males accustomed to void calculi or gravel naturally until about sixty years of age is reached, when the prostate commences to enlarge and obstruct. A wrong construction is sometimes put on this cessation until bladder irritability is noticed.

In females calculi are for the most part of vesical, not renal origin, not infrequently connected with foreign bodies.

In an article I published, on the formation of stone by molecular coalescence (*The Lancet*, Feb. 9, 1901), about the time which immediately preceded the more general adoption of prostatectomy, I referred to an analysis of 101 consecutive cases of stone in the bladder in different males which I had recently treated by crushing on Bigelow's lines. Though out of this number only six deaths occurred, twenty-three patients had a recurrence of stone which necessitated at varying intervals one or more repeated operations. The average age of these 101 persons was sixty-three years. Of them, seventeen had considerable enlargement of the prostate, whilst, in addition to these, twelve had pouched or sacculated bladders; and the same number were more or less dependent on their catheters at the time of the first operation. Hence it may be concluded that out of 101 persons who suffered from bladder stone forty-one had in addition an enlargement of the prostate. On the other hand, in younger and otherwise healthy males, without any form of urethral or prostatic obstruction, the liability to recurrence of stone in the bladder is rare, and explainable; when it does

happen, by fresh descents from the kidney of a diathetic stone too large to escape from the bladder without assistance with the lithotrite and evacuator.

Nor, relative to the frequency of recurring stone, is my experience an exceptional one. In this way, and without any reflection upon surgical skill, lithotrity tended to become discredited, and supra-pubic lithotomy bade fair again to supplant Bigelow's historical operation. Prostatectomy has practically changed all this. Recurrence of bladder stones complicated with an enlarged prostate or its effects, may now be regarded as a good and sufficient reason in itself for the removal of the gland at the same time as the stone.

Within the last six years, that is to say, since my paper was published, I am cognizant of over thirty cases of bladder stone in which the prostate has been removed for symptoms such as an enlarged gland is capable of producing, combined with a recurrent stone following one or more of my previous operations by crushing.

I am not aware of any death happening when prostatectomy was undertaken for recurrent stone associated with prostatic symptoms. This circumstance was probably due to my good fortune in only having to deal with instances of adenomatous prostate which shelled out with comparative ease. When this is not the case, and the gland has to be broken up and removed piecemeal with the finger or forceps, the difficulty is considerably increased, and the possibility of malignancy has to be taken into consideration relative to prospective events, though the immediate and temporary effects of the operation may fully justify its performance. Carcinoma of the prostate is not prohibitory of prostatectomy. Having regard to the function of these parts, and the need and degree of relief that is required in some instances, it may prove the best alternative whether or not a stone is present, and may be advised on this ground alone.

Some of my cases of adenomatous prostates with stone recurrences had remarkable histories. In one of the persons referred to lithotrity was repeated by me thirteen times in the course of a few years. The patient got so used to this process that three or four days in a surgical home sufficed

to clear him of a considerable mass of phosphatic stone without occasioning him any further detention and with complete temporary relief of varying duration.

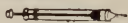
Similarly two other cases each previously underwent lithotrity for recurrence of stone ten times, another six, and others fewer times. All eventually were submitted to prostatectomy, and though some years have elapsed since the latter operation I am only aware of one having had any recurrence of stone, and this occurred four years after the prostate was removed. In the meantime he, as well as the others, enjoyed good health without occasion to use a catheter. A record such as this is in itself sufficient to indicate without discussion that an enlarged prostate may prove a direct cause of stone in the bladder.

How far prostatectomy is applicable to primary cases of stone complicated with an enlarged prostate causing symptoms of its own is a matter which can only be considered in individual instances. Many examples have occurred where this has been successfully done, though in some cases the stone or stones were not discovered until the bladder was opened for the purpose of enucleating and removing the enlarged prostate. Hence the feasibility of the double operation has been sufficiently illustrated. On the other hand, it must be remembered that in a considerable proportion of cases in elderly males the enlarged prostate only asserts itself symptomatically so long as the bladder contains a stone. After this is removed all may remain quiet and natural. Where there seems a reasonable probability of this, lithotrity and evacuation is the simplest expedient with the least risk. If, in spite of this anticipation, recurrence of stone follows, then the prostate may also be removed.

Should, however, a concurrence of painful symptoms exist in which stone, bladder, prostate and catheterism, are all more or less concerned, a strong case is made out for a primary prostatectomy. In these circumstances, to get rid of such a combination is a consummation worth taking some degree of risk to obtain, and is quite within reach. Even persons of a very advanced age are often more likely, to use a common expression, to bear the operation well than the

distressing symptoms which otherwise they would be called upon to endure.

Then there is this consideration, apart from the inconvenience connected with the life-long use of a catheter. The restoration of the natural function of micturition, which may usually be relied upon, is the greatest safeguard against the recurrence of stone and the mechanical disorganisation of the bladder by sacs and pouches which is often largely responsible for its production.



SEXUAL PERVERSION ACCOMPANYING PROSTATIC HYPERTROPHY. Dr. J. F. PERCY (*J. A. M. A.*), believes that the old prostatic, who shows aberrant sexual activity, is in a large proportion of cases suffering from a psychosis rather than senile dementia, to which the symptoms are usually attributed. Under the influence of the irritation from his enlarged prostate, he may commit all forms of sexual crime, and after removal of his prostate his functional sexual aberration disappears and he remains cured. This phase of the diseased prostate opens up the possibility of a more rational study of the pelvic environment of the prostate gland in sexual perverts among men, old and young. Many old prostates are in insane asylums, many of them are in the government and state soldiers' homes, as well as in the various county almshouses. The strain of sexual excesses from early life until old age, the intimate connection maintained between the prostate gland and the sympathetic and the cerebrospinal nerves, the unknown secretory functions of the prostate gland along physiologic lines, these all make prominent the fact that with the hypertrophied prostate can be had a class of symptoms referable to the sexual system, where the mental life of the sufferer carries him close to the border line of insanity, and which can be corrected by the aid of surgery.

EDITORIAL

THE PRESENT STATUS OF THE TREATMENT OF URETHRITIS.

WE have some good friends in the profession who turn up their noses or shrug their shoulders when, in casting their eyes on the contents of pages of a medical journal, they happen to perceive an article dealing with the treatment of gonorrhea. This nose upturning and shoulder shrugging are the physical evidences of a mental process which is sometimes expressed in words and sometimes not, but which in either case very closely corresponds to: "Oh, that's an old chestnut." That gonorrhea as a disease is an old and rather unpleasant chestnut is readily granted, but that the last word on the treatment of the disease has been spoken is very, very far from being the case. "The treatment of gonorrhea has been discussed and rediscussed, hashed and rehashed and it is (or should be) a closed book," said one of our above-referred-to friends. Well, if the treatment of gonorrhea is a closed book, it is a very imperfectly written, misleading, contradictory, badly marred and altogether unsatisfactory book, and we should anxiously and prayerfully await a new edition of the book or an entirely new volume.

That the present status of the treatment of gonorrhea is very unsatisfactory will be admitted by every fair-minded physician. Of course, we do not speak of the genito-urinary specialists. *We* know it all. To us, specialists, the treatment of any case of gonorrhea, acute, subacute or chronic, is as easy as the swallowing of a clam. No, we do not speak of the specialists. First, it isn't safe; second, it isn't polite: present company is always excepted. We speak of the general practitioner. Let us put the blame on him. First, he is not here to defend himself; second, there is so many of him—over a hundred thousand in this country alone—that by dividing the responsibility he will not feel it overmuch. And then again the status of treatment of a certain disease is not to be judged by the success attained in

the hands of a few, specially gifted and skilled. The millions of gonorrheics cannot go to the expensive and not always accessible specialists. They must apply to the general practitioner—and it is by the results obtained by *him* that the treatment must be judged. And judging by these results the treatment may be pronounced an unqualified—failure.

Rash as the statement may sound and fully cognizant as we are of our temerity in making it, we nevertheless do make the statement, that in our opinion the treatment of gonorrhea to-day by the general practitioner is on the whole less satisfactory than it was fifty years ago. We were not in practice fifty years ago, but we have read pretty nearly everything written during that period, about the treatment of gonorrhea, and we cannot escape one of two conclusions: Either that urethritis of half a century ago was a much milder, a much more benign disease than it is to-day, or that the treatment was more rational and more successful in the middle of the nineteenth than it is at the beginning of the twentieth century. As we have no justifiable ground whatsoever for the first conclusion, we are obliged, reluctantly, to take the other. As one studies the text-books published during the century, in chronological order, one is particularly struck with the gradually *increasing* percentage of sequelæ, as given by different authors. And this increasing percentage of posterior urethritis, prostatitis, vesiculitis, epididymitis, etc.,—can have but one etiology—the present day methods of treatment.

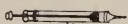
It is not the purpose of the present editorial to outline the ideal treatment of urethritis or to compare the present methods with those in vogue half a century or a century ago. Two statements, however, we shall make before concluding. The first is to the effect that the present day treatment of gonorrhea, as generally practiced, is entirely too brutal, or let us say meddlesome, if you prefer a milder expression. There is entirely too much of careless injecting, instilling, irrigating, sounding, dilating, burning, expressing, *et id omne genus*, as a result of which we have hopelessly damaged aged urethras with weakened cut-off muscles, relaxed vesical

sphincters, dribbling urine, etc., and other complications so frequent, that we no longer call them complications, but natural accompaniments of the disease.

The second statement is that the treatment of gonorrhea is anything but a closed book. It is an open and incomplete book, in which we are obliged constantly to make erasures, marginal notes, eliminations and additions. Perhaps we will soon have to rewrite the greater part of the book.

THE AMERICAN JOURNAL OF UROLOGY considers urethritis a disease as important as those genito-urinary affections for the relief of which we have recourse to formidable surgical operations. It considers the treatment of the disease one of the most important medical problems of the day. And our pages will always be wide open to scientific and practical discussions of the theme—timeworn as the latter may appear to be.

W. J. R.



THE TREATMENT OF CHRONIC INTERSTITIAL NEPHRITIS.

THAT medical treatment may accomplish something and ward off a fatal outcome in chronic interstitial nephritis is beyond any reasonable doubt, because medicine and properly directed medical treatment can do much to prolong life, and cure or ameliorate serious complications, by preventing renal overwork, thus sparing to a certain extent the ever-gradually diminishing glandular epithelium, by invigorating the entire system of the patient, and by sparing the heart on the one hand, and strengthening it on the other.

In many respects the same mode of diet is advisable as in the chronic parenchymatous type, but exception is to be made to the strictness by limiting the amount of liquids, the deprivation of chlorides and as to the amount of animal food permitted. On the latter point von Noorden has pointed out that there is no reasonable objection to meat, dark or white being of little difference. He has also found it much easier to feed these patients rationally, and to raise their general strength by permitting a diet, including proteids, to the amount of six or seven ounces of raw meat daily for a

man two hundred pounds in weight. The guide in treatment is in reality the condition of the cardiac muscle; should dilatation of the ventricle occur, no matter whether the organ be already hypertrophied or not, there will be significant danger signals of dyspnea, asthma, and insomnia. Under these circumstances the amount of water ingested should be reduced in order not to overfill the already crowded blood vessels, while liquid nourishment should be reduced by half, although the effect will be to temporarily increase the albumin in the urine, but the heart will become stronger.

Next to the heart, or perhaps it were better said along with it, we have another valuable guide in the state of the arteries. In instances where increased arterial tension is evident, the daily use of nitroglycerin or sodium nitrite is of the greatest benefit; a marked improvement takes place in the pulse, and with it in the general health of the patient.

Dr. J. M. Finny, in an important paper read a short time since before the Royal Academy of Medicine in Ireland states that he has found 1-100 gr. of nitroglycerin administered three times a day, or gr. $\frac{1}{2}$ to gr. 1 of sodium nitrite, to act as a charm, but he also states that these medicines must be frequently repeated, as their effect on tension is evanescent, but if persevered in for, say, one or two months at a time, he has found it possible afterwards to reduce the dose or even do without them altogether. Another drug of similar and even greater benefit has been potassium iodide, persevered in for weeks or months. Not only does it lower the tension, but by its action on the arterial nutrition, it reduces the risk of hemorrhage in the brain or retina, and causes the retinal mischief of former ruptures to be limited and the extravasations to be absorbed.

Among the distressing symptoms in atrophic nephritis is insomnia and this may be an evidence of approaching uremia, and may shortly, and perhaps abruptly, terminate in coma or convulsions. Finney considers the best treatment to consist in restricting the diet for a few days, though not limiting water, and administering chloral hydrate in full doses. Should it fail to produce sleep hyoscin hydrobromide may be beneficial, and after that morphine hypodermically.

The use of morphine in renal affections must ever be approached with caution, and should be strictly forbidden in the uremic symptoms of acute nephritis, but it is a valuable addition to our therapeutic agents in the chronic affection under consideration. It relieves the asthma, checks the vomiting, subdues the headaches, secures sleep, and in the status epilepticus of uremia it lessens the duration of the attacks and prevents their recurrence. For the convulsions themselves, chloroform inhalations, when the patient is unable to swallow, or chloral hydrate at the dose of 20 to 30 grains by mouth, or 40 to 60 grains by rectum, will probably be the most effective. No case is ever so bad as to be beyond the hope of relief by treatment, and this should ever be recalled when dealing with these cases.



Original Abstracts and Translations

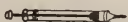
A NEW METHOD OF INTERNAL URETHROTOMY. F. P. GUYARD (*Annales des maladies des organes génito-urinaires*, 1908, No. 5), recently presented to the Academy of Medicine a memoir concerning internal urethrotomy, which is of considerable importance. He advocates a combination of the classical method of Maisonneuve (namely a median incision in the upper wall, single and deep in character), together with a double graduated series of complementary incisions, which are very numerous, but are only a millimetre in depth. He employs a dilating urethrotome which can be screwed up to 42 or even 50 French. While gradual progressive dilatation is the method of choice in the treatment of urethral strictures, rebellious cases should be handled with the aid of internal urethrotomy, which is both harmless and efficient. There are, however, cases in which internal urethrotomy is not applicable. Thus, when the fibrous ring which constitutes the stricture is so thick and dense that dilatation beyond No. 10 is impossible. Of all the methods of internal urethrotomy that of Maisonneuve should be preferred. The operation is simple and does not require general anesthesia. A simple instillation of cocaine, about three

grammes of a five per cent. solution, suffices to anesthetize the mucosa. The hemorrhage following the operation is usually very slight. In a word, the operation is innocuous and inoffensive. In some cases, however, the classical method is insufficient. The single incision of Maisonneuve must in these cases be complemented by secondary incisions on the lateral and inferior walls. For this purpose, the author has modified the urethrotome of Maisonneuve by adding a number of blades which produce the supplementary incisions.



THE TREATMENT OF EPIDIDYMITIS BY INCISION. DIND and METRAUX, of Lauzanne (*Annales des maladies des organes génito-urinaires*, No. 5, 1908), report fifty-one cases of epididymitis, with or without the formation of an abscess, in which they incised the inflamed organ. They claim that the treatment by incision is by far superior to any other method, especially in hospital practice. The disadvantage of this treatment is that it cannot always be applied in cases in private practice when the patient is anxious to keep his trouble secret. The effect of the incision is very striking. The pain is at once relieved, the temperature immediately falls and the infiltration rapidly disappears. With the usual treatment, it is impossible to obtain a rapid resolution of the exudate, while with the surgical method, a much better result is obtained. The scar tissue which remains is less dense, the compression of the canal less marked. In the authors' experience the best time to incise the epididymis is the second week of the disease, but it is not necessary to wait for fluctuation, and the incision can be made earlier if desired. The method of procedure consists in pulling the scrotum up over the pubes, holding the lateral surface of the epididymis between the thumb and index of the left hand and incising the skin thus made tense. The incision is started over the tail of the organ and is prolonged according to indications, differing in each case, rarely extending to the head. The incision made layer by layer finally reaches the purulent focus. The hemorrhage is slight and the abscess cavity is wiped out with gauze or scraped with a dull curette. There is no advantage in opening the tunica vaginalis. If there is much pus and fibrin, requiring the liberation of the

serous tunic, it is better to make an independent incision in the latter. Other authors (Hagner) incise the testicle at its lateral aspect, enter thus into the cavity of the tunica and through the latter attack the lateral aspect of the epididymis. The present authors tried this method, but did not find it superior to that just outlined.



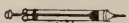
EXPERIMENTAL STUDY UPON THE EFFECT OF TRAUMATISM ON THE HEALTHY KIDNEY WHEN THE OPPOSITE ORGAN IS TUBERCULOUS. P. DE FAVENTO and G. CONFORTI (*Folia Urologica*, March, 1908), publish a research the object of which was to establish whether operative interference with a sound kidney—nephrotomy, decapsulation, nephropexy—was sufficient to set up a tuberculosis in these organs, if, immediately thereafter, the other kidney, which had previously been rendered experimentally tuberculous, was removed. The experiments were made on twelve rabbits. Tubercle bacilli were injected directly into the parenchyma of the kidney in order to set up a tuberculosis of that organ. A tuberculous kidney was produced in nine out of twelve cases in these rabbits. Of these nine animals, one died from complicating infection on the twenty-eighth day after the inoculation. The second part of the experiment was carried out from fifteen to thirty days after the first. In three rabbits, which served for control, the kidney which had previously been injected with tubercle bacilli, was removed, while the other one was left alone. In the other eight cases, an operation was performed upon the opposite kidney, before the kidney which had been experimentally infected had been removed. Both operations were done at the same sitting in each case. In four of these cases, the operation on the opposite kidney was nephrotomy, in the other four decapsulation and nephropexy.

Of the three animals in which nephrectomy of the tuberculous kidney alone was performed, one died soon after the operation. Therefore, of the twelve rabbits only seven were available for definite conclusions, for two had died and in three the inoculation with tubercle was without result. In two of the six animals in which the sound kidney had been injured, that kidney was found tuberculous and miliary tu-

bercles were found in the lungs. In the other four cases, the injured kidney and the lungs were sound. In the only remaining controlled rabbit, there was miliary tuberculosis of the lungs, but the injured kidney was sound. The conclusion is that in cases in which the entrance of tubercle bacilli into the circulation after the nephrectomy for tuberculous kidney, was demonstrated by the presence of miliary tuberculosis of the lungs, the other kidney also became tuberculous if that kidney was injured. Furthermore, the removal of one tuberculous kidney in two out of six cases had evoked a tuberculosis of the other injured kidney.



A SIMPLE METHOD OF SEPARATING THE URINES OF THE TWO KIDNEYS. According to PAUL MULLER (*Folia Urologica*, March, 1908), a simple way to get the urine of one kidney separately is to compress the ureter of the other kidney at the point where it lies upon the M. psoas major aside of the last lumbar vertebra. At this point an elastic rolled-up bandage or a piece of elastic rubber of half ellipsoid form attached with a handle is placed on the anterior wall of the abdomen of the patient who lies on his back, with the pelvis somewhat elevated; then strong but equal pressure is applied in vertical direction for two to thirty minutes. The preceding irrigation of the bladder, done until a completely clear liquid returns, is to be continued for several minutes after the beginning of the compression. It is necessary to empty the bowels thoroughly beforehand. Narcosis will, as a rule, not be needed.



TREATMENT OF COMPLICATED STRICTURES IN THE URETHRA. P. BAZY, of Paris (*Journal des Praticiens*, 1907, No. 43), divides the complications in strictures into anatomical and functional.

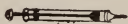
(1). Impermeable strictures should be dilated first with any instrument that may enter. Cocaine and adrenalin should be injected first in order to contract the vessels, and as a last resort anesthesia may be employed. Spinal anesthesia may be used for this purpose. If a bougie be introduced, then internal urethrotomy can be practiced and if not, external urethrotomy must be resorted to.

(2). Strictures with infection, local or general. These may be manifested by a periurethral abscess, or urinary infiltration or by prostatic abscess. In these cases, the infected focus whatever it is, must be incised freely, and then the stricture should be attended to. When general infection exists, the infectious focus should be drained freely and the bladder drained after internal urethrotomy.

(3). Strictures with acute complete retention. The cause of an acute retention is always an acute cystitis. Therefore, we should try warm baths, poultices upon the abdomen, and enemas with antipyrine or morphine. If this does not produce the desired effect, then we must try to pass a catheter or a filiform. If this is not successfully accomplished, then by the mere pressure of a larger sound the spasm of the bladder can sometimes be relieved and some urine may thus be evacuated.

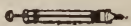
(4). Strictures with incomplete retention. In these cases, if no infection is present, the gradual dilatation of the urethra should be attempted and if it fails, internal urethrotomy should be performed.

(5). Strictures with the formation of fistulae. In recent fistulae, the mere dilatation of the stricture usually suffices. In fistulae with a periurethral abscess, there should be either dilatation or eventually internal urethrotomy. When there are large masses of scar tissue, external urethrotomy, or the excision of the scar, is indicated. External urethrotomy should be reserved for strictures of the membranous or perineoscrotal urethra.

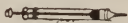


TREATMENT OF URETHRAL STRICTURE WITH FIBROLYSIN. H. LANG (*Duetsch. Med. Wochschrft*, 1907, No. 48), reports the following case. A patient, aged eighty-one, had acquired a traumatic stricture fifty-three years previously. There was a large amount of scar tissue and a narrow stricture which admitted a bougie from No. 8 to No. 11. After the injection of fibrolysin (twenty tubes having been used in as many treatments), No. 15 could be introduced with ease. In a second case the stricture was of a gonorrheal origin and after ten injections of fibrolysin a

sound of considerable size could be introduced, although before the treatment the introduction of any instrument was either very painful or impossible.

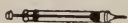


SOME FALLACIES IN THE EXAMINATION FOR GONOCOCCI. A. VON WAHL (*Practichesci Vratsh*, 1907, No. 44-45), says that in order to get trustworthy results in the examination for gonococci the following rules should be observed: The material to be examined must be fresh. If urine is to be examined then the patient should urinate in the presence of the physician, and any suspicious flocculi or shreds should be at once transferred to slides and fixed. Before any examination of secretion, shreds, etc., is made, no local or internal treatment should be given for a few days. In some cases it is necessary to interrupt the treatment for a longer time. In all cases the shreds as well as the scanty secretion should be examined. The shreds may not contain any gonococci, as they may be derived from very old foci in the urethra. Yet the scanty secretion which floats in the shape of minute points in the urine will sometimes contain gonococci. The secretion should therefore be examined always. In women it is easier to make cultures in case of doubt as one obtains abundant material as a rule.



IODINE IN TUBERCULOUS EPIDIDYMO-ORCHITIS. Dr. G. FINOCCHIARO (*Policlinico; J. A. M. A.*), reports excellent results from the local injection of iodine in tuberculosis of the testicle as practiced by Durante. The inflamed epididymis rapidly subsides in size and becomes transformed into indolent fibroid tissue, thus healing the tuberculous process as well as if it had been excised, while there is none of the demoralizing effects of operative measures. An average of about thirty local parenchymatous injections are required, commencing with a few drops of a one per cent. solution of iodine in distilled water, with potassium iodide for a solvent. The number of drops is gradually increased, the aim being to spread the fluid evenly through the tissues while avoiding the induction of hemorrhage into the tissues. This local treatment is supplemented by general measures against the tuberculosis and internal administration of iodine to keep

the body under the influence of the drug. Twelve patients thus treated have been restored to health and have gained in weight; three typical cases are reported in detail. This method of treatment was applied to a number of rabbits previously infected in the testes with tubercle bacilli. The experimental findings as well as the clinical experience, all speak in favor of the benefits of this method of treating tubercular epididymo-orchitis, as the healing resembles that of the natural healing of tuberculous processes. In two cases the tuberculous affection of both testicles not only healed, but the normal function was restored, a number of normal spermatozoa being found in the seminal fluid. Durante has long been using iodine in treatment of surgical tuberculous processes in the bones, etc., obtaining results, it is claimed, superior to those of radical operations. The iodine stimulates the tissues to increased resistance and phagocytosis, while it attenuates the virulence of the bacilli. Applied to tuberculous epididymo-orchitis, the article concludes: "The iodine treatment restores to society men, not eunuchs."



CHANCROIDAL BUBO AND ITS TREATMENT. Dr. HENRY H. MORTON, of Brooklyn, thus outlines the treatment of Chancroidal Bubo, which treatment he has seen applied at the Charité in Berlin, and which has given him excellent results (*Med. Record*, Vol. 74, No. 4): When a bubo first appears, an attempt should always be made to prevent supuration by putting the patient to bed. The ice bag, which was formerly so popular, is no longer used because it has been found that resolution will take place just as well with warm applications. Injection into the substance of the gland of antiseptic solutions, such as nitrate of silver, carbolic acid, and bichloride of mercury, has also been abandoned as useless.

A common method in the Charité in Berlin is to cover the bubo with gauze, wet with 95 per cent. alcohol, covered with cotton wadding and perforated gutta percha tissue to prevent too rapid evaporation. The alcohol is renewed twice a day as it evaporates. Another method in common use is fomentation with solution of acetate of aluminum used warm and frequently renewed. Tincture of iodine has little or no value as an absorbent.

After fluctuation has begun the warm applications should be changed for hot ones, to encourage rapid breaking down of the glands.

The thermolyte bags are useful, as they can be used with the hot fomentations and serve to retain the heat for a long time.

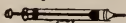
After the bubo is thoroughly broken down and full of pus, a small incision is made with a double-edged knife and the pus evacuated. A ten per cent. iodoform-glycerin emulsion is then injected into the wound. The injection is made three times at the first sitting, the first two injections being allowed to run out and the last one retained. The wound is then bandaged over night with fomentations of solution of the acetate of aluminum.

On the following day the bubo is emptied by squeezing out and the injection is again made three times, the two first injections running out and the last one remaining in. The wound is then bandaged and left undisturbed for five or six days. At the end of that time, in the great majority of cases the bubo is healed and the patient requires no further treatment.



ABEL'S MEDIUM FOR GROWING THE GONOCOCCUS. The apparent affinity of the gonococcus for the human body and the difficulty with which it is grown in artificial media has led many investigators to evolve specially prepared media, usually of highly nitrogenous character, for its cultivation. Wasserman and Thalman have experimented in this direction with fairly good result, but the medium recently perfected by Abel seems calculated to supplant all others for gonococcic culture. Its reliability and ease of preparation, together with the rapidity with which the organisms multiply on its surface, especially commend it. The method of preparation is to mix five hundred grams of fat-free meat, finely hashed, with one thousand grams of water. This is allowed to stand in an ice chest for from eighteen to twenty-four hours, after which it is filtered through paper and a Chamberland bougie into sterile containers. The fluid will withstand alterative changes for a reasonable time, and for use

is mixed with either fluid or solid pepton media in the proportion of one to five.—*Physician and Surgeon.*



GANGRENE OF KIDNEY. A case of this extremely rare condition is reported by ABERNATHY and GRAHAM, in *Charlotte Medical Journal* for January, 1908. The patient was a girl thirteen years of age. Upon arising in the morning she experienced severe pain in the right side of abdomen just above crest of ilium. Four days later, when first seen by a physician, the symptoms, both subjective and objective, were such that a diagnosis of acute appendicitis with rupture was made. Patient was removed to the hospital, a surgeon called, who made the same diagnosis, and operated at once, as the patient's condition was becoming desperate. Incision was made through external border of right rectus muscle, but the appendix was found to be perfectly normal. The only evidences of any trouble were omental adhesions. Further investigation revealed an enlarged right kidney, which was almost black. This kidney was removed through the anterior incision and the patient made a complete recovery. There was a twist in the ureter a short distance from the kidney, but no calculus.—*Lancet-Clinic.*

BOOK NOTICES

BIER'S HYPEREMIC TREATMENT in Surgery, Medicine and all the Specialties: A Manual of Its Practical Application. By WILLY MEYER, M. D., Professor of Surgery at the New York Post-Graduate Medical School and Hospital; and Professor Dr. VICTOR SCHMIEDEN, Assistant to Professor Bier at Berlin University, Germany. Octavo of 209 pages, illustrated. Philadelphia and London: W. B. SAUNDERS COMPANY, 1908. Cloth, \$3.00 net.

Prof. WILLY MEYER deserves the thanks of the profession for having brought out the above manual. While numerous articles and abstracts on Bier's Hyperemia have appeared in our periodical literature, many of them have been fragmentary, while some have been distinctly misleading. We know of cases in which the *stauungs hyperæmie* has produced injurious results, an investigation disclosing the fact that the sole cause was a faulty technique. Those who wish to use the Bier treatment will now have no excuse for errors, for in Meyer and Schmieden's manual they have a plain, explicit, thoroughly illustrated and authoritative exposition of both the principles and the practical application of the method.

Mechanically the volume is an excellent sample of the bookmaker's art.

PROSTATIC ENLARGEMENT.—By Cuthbert S. Wallace, M.B., B.S. (London), F.R.C.S. (England). Surgeon to the East London Hospital for Children, and Surgeon to out-patients, St. Thomas's Hospital; Teacher of Practical and Operative Surgery in the Medical School. *Bacteriology* by Leonard S. Dudgeon, M.R.C.P. (London). Bacteriologist to St. Thomas's Hospital, Director of the Laboratories and Joint Lecturer on Pathology in the Medical School. Published by the Oxford University Press, London and New York, 1907. Cloth. Profusely illustrated. 215 pages. Price, \$4.50.

While many "original" books are published, it is seldom indeed that they contain much that is really original, in the true sense of the word. And especially is this true of the specialties. Dr. Wallace's book is an exception. It embodies the results of really valuable original research. The illustrations are highly instructive. We have learned a great deal from the book, and no genito-urinary surgeon can afford to miss its lessons.

DISEASES OF THE MALE GENERATIVE ORGANS.—By Edred M. Corner, M.A., M.B., B.Sc., M.C., F.R.C.S. Surgeon to out-patients, St. Thomas's Hospital, Senior Surgeon to Out-patients, Children's Hospital, Great Ormond Street. Consulting Surgeon to the Wood and Purley Hospitals. Late Erasmus Wilson Lecturer, Royal College of Surgeons, Etc. Published by the Oxford University Press: London and New York. 1907. Cloth. 279 pages. Price, \$1.50.

This small volume treats principally with the surgical diseases of the male generative organs. The prostate, however, is not touched upon and gonorrhea is only alluded to, because the subjects are large enough, the author tells us, to form separate volumes. The subjects that are treated of are treated well, in a rational common sense manner.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, EDITOR.

VOL. IV.

JUNE, 1908.

No 6.

HEMATURIA WITH REPORT OF CASES

By GRANVILLE MACGOWAN, M. D., Los Angeles, Cal.

THE manifest presence of blood at the mouth of the urethra, or mixed with the urine, is a symptom which alarms the person in whom it occurs, and not infrequently terrorizes his medical attendant.

To be of value any treatment for this condition must follow upon a knowledge of the source of the hemorrhage.

Until of very recent years there was much of the occult about hematuria. With most learned and scientifically ponderous reasoning, consulting physicians, commonly by deductive analysis, fixed upon the bleeding spot, and then often, by operation, or post-mortem section, proved what poor guessers they were. This good work still goes on, though the means exist by which surmising, as to the origin of the hemorrhage is, except in the rarest instances, rendered unnecessary.

By the agency of urethoscopes and systoscopes of various patterns it is readily possible to explore the urethra, the bladder, the ureters and the pelves of the kidneys, and exact information of the cause and the place of a hemorrhage of the genito-urinary tract may be obtained in nearly every case.

In many books rules for differential diagnosis in cases of hematuria may be found: by the color of the blood; the size and shape of the clot; the chemical analysis of the urine; whether the blood precedes, is mixed with, or follows the urinary stream, the source of the hemorrhage is sought to be established. None of these features have any exact

Read at the joint Session of the Medical Society of the State of California and the Pacific Coast Branch of the American Urological Association, at Coronado, April 21, 1908.

worth,—for hemorrhage from a kidney may be so profuse that it is passed almost arterial in hue, being very rapid one bladder full may be hardly expelled before the necessity of urinating is again present.

I. It is true that when blood appears at the meatus in intervals of urination the source of the hemorrhage is nearly always in front of the deep transverse perineal muscles, but to this there are frequent exceptions, many of them striking.

2/25/08. S. M., 82 years old, retired merchant, sent to me by Dr. Rogers of Tucson, has retention and profuse hematuria. Two months ago his first hemorrhage occurred suddenly and was followed by retention. He had had three attacks, the present one has now lasted a week, and has been very severe—the urine is full of clots. There is retention to 400 cc's. He strains, and passes a little urine at times. Blood appears, sometimes, at the meatus, in the intervals between urination or the use of the catheter. 2/27/08. Perineal section, and removal of a carcinomatous prostate; the left half of the prostate was already loosened from its capsule and nearly destroyed by the disease. He was up and about in ten days with the wound closed. At the end of the second week renewal of the hemorrhage, tenesmus, and invasion of the perineal scar by the growth, necessitated *sectio alta* and permanent drainage—since which he has been comfortable.

II. When blood suddenly appears, at or toward the end of urination, in a previously clear stream, it is reasonable to place its origin, either in the bladder or close to the outlet, or within the prostatic urethra, or from the prostate. It is often of importance that this shall be accurately determined, and it can only be done by the use of an instrument through which we can see; for sometimes, in a typical condition of this sort, the blood comes altogether from points anterior to the membranous urethra.

2/6/08. Mr. B. B., 40 years of age, rancher, single, sent by Dr. Sheppard. In January, 1908, he noticed smarting upon passing urine; this was followed in a week by painful hematuria, the blood appearing toward the end of urination. His general health had been bad for two months, and

he had lost fully fifteen pounds in weight. Inspection of the urethra through a small endoscope, 20 F., showed many granular patches which ceased in the posterior portion of the bulb. The right side of the prostate was harder than the left. When urine was passed in three glasses, the centrifuged sediment of the last glass did not contain any blood. Search for tubercle bacilli, and the guinea pig test proved negative. The hematuria has ceased, and his general health appears to be restored by gradual dilation of this urethra and the application of strong silver solutions, through the endoscope, to the granular patches.

III. It is also true that, often, in moderate hemorrhage from a kidney, at intervals the blood coagulates in the ureter, and lies there long enough to become partially fibrinous before it is dislodged, causing the appearance of long, thin, fish-worm like clots in the urine from time to time; but I have seen very similar clots occur in slow hemorrhage from villous growths situated in the bladder near the ureteral mouths, where the jets of urine projected steadily against the bleeding point caused the clot to wave back and forth in the urine, like kelp in the rise and fall of the tide. I have seen a slow hemorrhage from an overlarge, congested or ulcerated, verumontanum, which blocked up the natural free passage from the prostatic urethra to the bladder, prevented the flowing of the effused blood into that viscus, and hindered any forceful outflow of urine at the time of emptying the bladder, produce clots, that in no way could be distinguished from those which form in the ureters.

In the course of extra peritoneal operations for renal hemorrhage I have several times watched the blood issue from the pelvis of the kidney and pass down the ureter in a long undulating series of successive small clots, or descend in frequent waves which did not clot at all.

Dec. 8/1900. H. E. W., 35, patient of Dr. Stoddard; occupation, merchant; had a profuse painless hematuria in 1892, following heavy lifting; this was repeated later after an exciting coitus, but ceased without treatment. Two months ago, after a fever accompanied by chills, there came an attack of dysuria and the appearance of blood in the urine

at the end of urination. The hematuria in a few days became profuse, was accompanied by paroxysmal pain in the back, and tenderness on pressure, particularly in the right side. In two months he had lost thirty pounds and become gravely anæmic. Upon cystoscopic examination blood was seen coming from the right ureter—October 22nd, nephrectomy through an Abbé incision. The ureter was inspected on the up-rolled peritoneum. Blood could be seen coming out of the pelvis of the kidney and passing down the ureter in interrupted spurts; it would clot about halfway down, and the clots then squeeze on toward the bladder, their place being taken immediately by those following. This kidney was soft, deeply congested, and bled inordinately upon section. It looked purpuric. Many sections from it were examined by Dr. Black; no definite pathological change was found in it. But the man got well, and remains perfect in health until this writing.

IV. The seat of hemorrhage may be: 1. The anterior urethra; 2, posterior urethra and prostate; 3, seminal vesicles; 4, bladder; 5, ureter; 6, kidneys.

1. Hemorrhage from the interior urethra may arise from: mechanical injury, gonorrhœa, stricture, warty growths, tuberculous ulcers.

2. Hemorrhage from the posterior urethra may arise from: enlarged or inflamed verumontanum, posterior urethritis, inflammation of the

Prostate	$\left\{ \begin{array}{l} \text{gonorrhoeal} \\ \text{tuberculous} \\ \text{mixed infections} \\ \text{syphilitic gummae} \end{array} \right.$	Seminal vesiculitis	$\left\{ \begin{array}{l} \text{cancer} \\ \text{seminal vesiculitis} \\ \text{mechanical violence} \\ \text{stone} \end{array} \right.$
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3. Hemorrhage from the bladder may arise from: cystitis, usually trigonal; edema of bladder neck and interureteral fold, ulceration of projecting adenoma of the prostate, non-malignant; stone; tuberculosis ulceration, simple ulcer; patchy gonorrhœal cystitis; telangiectasis of the posterior slope between the vesical outlet and the ureteral openings; new growths, simple and malignant; bilharzia; mechanical violence, frequently from sounding.

4. Hemorrhage from the kidneys may be from: tuberculosis; essential or without appreciable cause; nephritis; violence; stone, sometimes in form of uratic or oxalate showers; malignant growths; papilloma, angiomatous degeneration of a papilla; disease of the adrenal; movable kidney.

5. Or hemorrhage may arise solely from diet, drugs, hæmophilia, or degeneration of the blood due to disease, as in variola, typhoid and malaria.

6. Hemorrhage from the ureter may come from the presence of stone; new growths; tuberculosis.

V. Hemorrhage from the anterior urethra due to mechanical violence is commonly, either self-inflicted, occurring in the very young from harsh handling of the penis, or the introduction of articles used for purposes of masturbation, or curiosity; or follows in the adult from narrowing of the channel by the cicatricial contracture of stricture, and sometimes quite severe hemorrhages follow the introduction of sounds or exploratory instruments, even when the greatest gentleness is observed. Again in many cases of stricture the hemorrhage takes place before the introduction of any instrument, and is, whether it be little or great, the source of the seeking of surgical advice.

4/1/'08. J. E. B., 66 years old, a strong and healthy man, had two months ago an alarming hemorrhage from the urethra, following urination, but without any antecedent symptoms. He consulted a surgeon, who catheterized him, gave deep urethral instillations, assured him that his trouble was an enlarged prostate, and prepared to operate on him therefor. Lack of confidence in his adviser brought him to me. I found a stricture 18 F., at the meatus, and a much tighter one, 14 F., 12 cm. from the meatus, which bled as the searcher passed through it. The prostate and vesicles were abnormally small and soft through the rectum. There was no residual urine. The strictures were cut freely, by internal urethrotomy and through an incision made at the apex of the prostate, for drainage and exploration, by touch and by sight, the prostate and vesical neck were found to be entirely healthy.

1/10/'08. C. W. S., mining broker. Has recently no-

ticed loss of sexual desire and has some blood in the urine; urinary frequency, diurnal 7-8, nocturnal 3-5; has been in habit of withdrawal or using a rubber condom in coitus; has tight multiple urethral strictures, 16 to 22 F., in anterior urethra, which bleed freely upon being disturbed with anything. Gradual dilation, and the application of 25% solution of silver nitrate through a small endoscope, overcame the hemorrhage, and has restored his waning sexual power.

VI. It is not necessary to dwell upon the hemorrhage in the acute stage of gonorrhœa, or in rupture of the anterior urethra, as the source of the blood in the urine is obvious in these cases. Growths within the urethral canal are nearly always warty or polypoid; either may bleed freely at times; and the locating of the resulting hematuria, without optical search of the channel, may be quite puzzling, for, if it be free, it may be sufficient to color the urine in all three glasses.

2/16/'08. C. A. B., capitalist, 36 years old, has morning drop and occasional bloody urine. He has had several sharp attacks of hematuria, blood being present at the start, during, and after the finish, of the act. He was supposed to have a growth at the vesical outlet. Examination with the urethroscope discovered the presence of a small polypus just in front of the triangular ligament. This disappeared after several cauterizations with 25% solution of silver nitrate.

VII. Tuberculous ulceration must be taken into account in estimating the probable cause of the presence of blood in the first flow of urine. The diagnosis is commonly easily made by the fact that such disease almost never stands alone, but is a sequel to a long advanced tuberculous disease of the urino-genital tract higher up.

If the blood comes from some trouble in the urethra posterior to what is called the cut-off muscle, in the absence of an unduly large or congested verumontanum, or of an inflammation of the prostate with its accompanying pain, some of it finding its way into the bladder, renders an opinion of its origin uncertain. An expression often heard in diagnosing the source of a hematuria is, "It comes somewhere from the neck of the bladder." That somewhere may be: Anywhere in the urethra posterior to the deep transverse

perineal muscles; in the substance of the prostate; within the drawstring of the mucous membrane covering the muscular tissue of the inner sphincter of the bladder; or in the mucous membrane of the bladder, and within 6 cm. of its outlet. Such hemorrhages may be painful. Whenever the basis of their cause is an acute inflammatory condition they are painful; sometimes excessively so, as is illustrated in acute gonorrhœal affections of this region, in tuberculous ulceration, and in calculus impacted within the entrance of the urethra, or lying in the trigone. In confirmed masturbation, or in those subject to any prolonged irritation that occasions rapidly repeated congestion of the sexual centers, an enlargement and permanent congestion of the caput gallinaginus takes place. This slows and obstructs the flow of urine, and the spasms induced by efforts to expel the last few drops often gives rise to noticeable hemorrhage at the end of micturation; and from continuance of the hemorrhage in the intervals, the blood may flow back into the bladder, and also clot in a long plug in the urethra, giving rise exactly to the phenomenon of fish-worm clotting one sees so often in hematuria from a renal source. A feeling at the end of urination of "something in the urethra like a cork" and a burning pain over the pubic bones is often complained of.

W. T. C., 3/27/'08, 47 years old, grain buyer, has great urinary frequency, suffers from emissions, and has at times bloody urine, the blood preceding, being mixed with and following urination. In addition there is strain, and a feeling for fifteen minutes after urination of the presence of a body about the size of a pea in the posterior urethra.

Urethroscopic examination shows the bleeding to come from a large verumontanum which contains a tumor the size of a small pea. This I shall remove later through a perineal incision. There is often a high grade of tenesmus in these affections of the bladder neck, and in no instance is it exemplified better than in cases of calculus in which the stone is shaped more or less like a letter L, one branch being formed in the prostatic urethra occupying and distending the vesical outlet and joined, in the sensitive trigone, by a cross branch which may be partially imbedded in the bladder wall. I

have seen three cases of this kind. They all had bloody urine and led lives of continuous torture. They all leaked after the removal of the stone.

8/25/'07. M. C., farmer, 58 years old, patient of Dr. Garcelon. Has had severe dysuria, and at times hematuria, for several years. Recently the tenesmus has been unbearable, and the pus and blood abundant. His health has failed rapidly from pain and loss of sleep. The calculus can easily be felt with a stone sound in the prostatic urethra. 8/27, lithotomy median perineal incision. The stone was large and imbedded in the left side of the prostate, and was continuous, through the neck of the bladder, with a large branch that was imbedded in the wall of the bladder on the left side of the base. It was a hard and extremely rough phosphatic calculus and was crushed and removed with difficulty. Recovery from the operation was speedy, but the full power of retention has never been restored.

VIII. Ulcerated syphilitic gummata, malignant growths, and mixed infections of the prostate, in addition to the diseases already mentioned, act as the causes of the appearance of blood in the urine. Gumma of this region are rare. I have seen two; both ran a typical course, occurred in men past the prime of life, were painless, and were accompanied by lessened sexual power, which was really the cause of the patients' anxiety. The hemorrhage was slight, but present in any specimen of urine passed until the disappearance of the lesions. Both required long use of iodine and mercury, in addition to massage and the application of silver solutions to the ulcerated prostatic urethra, through the endoscope. As an instance of mixed infection with ulceration, the following case may serve to illustrate:

8/14/'07. J. R. S., 40, merchant, widower; sent to me by Dr. Hunter. Had gonorrhœa two years ago, with extension to prostate, bladder, and epididymis.

Has seen no discharge for more than a year, but the wish to marry again has made him desirous of ascertaining if the cure has been complete. A few shreds in the first glass, which contain no gonococci. Some blood and pus in the second glass. Has noticed blood in urine at times. Anterior ure-

thra healthy; prostatic urethra congested on right side; bladder healthy. The right side of the prostate is the larger, nodular, and a fluid containing blood and pus is readily pressed out of it. The spermatozoa are motionless. Stains for tubercle bacilli and gonococci negative.

4/14/'08. I have treated him by prostatic massage, dilation of the prostatic urethra, irrigation, and local applications, together with internal medicines, weekly, since last August, with improvement; the bleeding is less, the spermatozoa are now large and active, and the prostate less hard, but the infection still persists. In February for the first time we found gonococci. A culture prepared this month by Dr. Martyn shows the infection to be a mixed gonococcus and staphylococcus albus one. He shall receive the vaccine treatment.

An entirely typical example of malignant disease of the prostate as a cause of hematuria is given in the very first case cited in this paper. It is noticeable that pain was not a marked symptom in any of the cases. But the presence or absence of pain is not constant, and not to be depended upon in a differential diagnosis. Though many symptoms are common to prostatic and vesical hemorrhages, it is often only after the most rigid examination of the whole urethra that the bleeding can be positively located in the bladder.

The hematuria from mechanical injury to the deep structures of the perineum, urethra, and prostate arises soon after the violence and always requires perineal section as a protection against urinary infiltration, and frequently for the control of the hemorrhage.

3/14/'03. M. W., 73 years old. Five years ago, in stepping out of a buggy, he fell astride of the wheel. He was instantly seized with a desire to urinate, but could not. He was taken home and his physician passed a catheter without great difficulty, and succeeded in doing so the following day, but with great difficulty. The urine was very bloody. This catheter was left in position for two days, but becoming filled with clots, it had to be removed, and then could not be replaced. When he was brought to me no urine had passed for 36 hours. A slight amount of blood was present

continuously at the meatus. Perineal section disclosed a complete fracture of the urethra. The distal end was found 6 cm. posterior to the anterior. The bladder was evacuated of blood and clots and the two torn ends of the urethra trimmed and united on the roof with fine catgut. Uneventful recovery.

IX. The most common cause of vesical hematuria is the congestion accompanying simple vesical inflammation, cystitis, more especially cystitis of the trigone. The causative influence of the cystitis may be the gonococcus, in which case the bladder will eventually be the seat of many patches of intense inflammation and sometimes of ulceration; the colon bacillus; the pus-producing cocci; the typhoid bacillus, or the bacillus *aërocapsulatus*. Once in a while the pathological change noticed will be a velvety edema of the inter-ureteral fold, and all, or a portion, of the mucous membrane about the vesical outlet. This is due to the interference with the venous circulation, and is particularly prone to occur in women who have displacements of the uterus. As an example, I cite the following case: 2/7/'08, Mrs. S. S., 58 years old, came to me with diagnosis of stone or tuberculosis; has excessive urinary frequency with pain, which commenced about three years ago, and has progressively become worse, until it is now every fifteen minutes during the day and hourly at night. The urine is frequently bloody. She has prolapsus of the uterus, a large cystocele, and a rectocele. No ulcer or growth in urethra. Cystoscopic examination, no stone, growth, or ulcer; but an intense cystitis with edema, most marked on the right side. Urine alkaline, contains blood, pus, and bacteria. Total solids 8 grammes for the 24 hours. Under spinal anesthesia we amputated the cervix, and repaired the perineum, and raised the bladder base. 3/30. The bladder will now hold from 90 to 150 c.c. without pain.

All of these cases are painful, and all are of everyday occurrence and easily detected by the cystoscope.

X. There is, however, another condition which occasions much vesical irritation, frequency of urination, and sometimes hematuria, but not often any definite pain. In this the

capillaries of the posterior slope of the bladder, from the vesical outlet to the urethral openings, become greatly dilated and increased in number, veritable masses of blood vessels that look like the fine red mosses of the sea when viewed through the clear liquid in the bladder. I have never yet been able to satisfy myself as to the cause which works to produce this telangiectatic condition or to devise a method for its cure.

XI. Tuberculous ulcers of this region frequently occasion severe hemorrhages, and, as in the case of ulcerations from other causes, microscopic investigations will discover blood in the urine so long as they are unhealed. In the acute genito-urinary tuberculosis which one sees often enough attaching itself upon a subacute or chronic gonorrhœa in young men between 15 and 25, the hemorrhages from these tuberculous ulcers of the trigone and vesical outlet are peculiarly distressing, alarming, and depressing. The urine is expelled every few minutes with spasmodic contracture of the abdominal muscles and intense pain; blood comes in it, and blood comes after it. The sick man becomes so absorbed in the presence of the blood, and so horror-stricken by it, that he forgets all of the other symptoms and begs only to be relieved of the hemorrhage.

3/12/1898. Wm. V., aged 19 years, single. Contracted gonorrhœa two years ago from which he has never recovered. He has had great urinary frequency for a year, together with hematuria. Urination takes place every fifteen minutes; clots are passed with the urine, and fluid blood follows it each time; the pain attending the act is atrocious. He is emaciated, pale, and feeble. The treatment he has received has been barbarous, consisting of distention of his bladder by strong solutions under high pressure and the passage of large sounds. The urine contains gonococci and tubercle bacilli. The prostate and seminal vesicles contain tuberculous nodules. His bladder capacity, under chloroform, is 120 c.c. Numerous tuberculous ulcers could be seen with the cystoscope on the fundus and in the trigone. By appropriate treatment this boy improved so much that he was apparently well by September of the same year. In December he con-

tracted gonorrhœa a second time. This extended promptly to his bladder, giving the excuse for a fresh outbreak of his tuberculosis; terrific hemorrhages followed. Later he was attacked by tuberculous meningitis, from which he died in March of the following year. His chief complaint was always the hematuria.

XII. In dilating strictures, and in stretching the urethra for the better attack upon chronic purulent infections of its glands, many make the mistake of depressing the handle of the instrument well down between the thighs, thus bringing its point violently against the vault of the bladder, and producing bruises or abrasions which afterward form ulcers, and become the seat of tuberculous infection. I have seen many such cases; and when present they are naturally always accompanied by the presence of blood in the urine.

J. T. C., 8/7/1893, 27 years old, coachman. An attack of gonorrhœa in 1891 was followed by spasmodic stricture. Following exposure to rain and cold came a cystitis, which was treated by sounds and severe injections, at the hands of an incompetent. Present frequency every twenty minutes, bladder capacity 40 c.c. Urine always bloody. It was the habit of the operator to force the sound in, depress the handle between the thighs and keep the instrument there for five or ten minutes each day. I put his bladder at rest, and, after the subsidence of the very acute symptoms, a cystoscopic examination was made. There were three large ulcers on the vault, where the point of the sounds introduced in the manner described would naturally touch; originally traumatic, they had become tuberculous. There were many miliary tubercles to be seen in the bladder. The man eventually was cured, under appropriate medical and surgical treatment.

XIII. In old men who suffer difficulty in urination from an obstruction due to an encroachment of a growth in the prostate pressing upon the canal, hematuria is a very frequent symptom. It may come from simple congestion, the hemorrhage arising by the breaking of an enlarged blood vessel by muscular strain or by pressure; or it may be primarily induced by clumsy or unfortunate efforts at catheterization, or by the violence occasioned by efforts to expel hard

fecal masses from a distended rectum. While the presence of hemorrhage, in a case of enlarged prostate, is by no means to be interpreted as a sign of malignant degeneration of the gland, yet it may always give occasion for thought. It is often severe and long lasting when due to an ulcerated surface occasioned by muscular force applied at intervals to some boss or lobe protruding into the urethra, or projecting upon a pedicle into the bladder.

9/18/'07. H. B. S., 78 years old, college professor, patient of Dr. Utley. Has had urinary frequency and obstruction for several years; ill and confined to bed for two months. Urine, blood stained; tenesmus extreme; hemorrhage at times very severe. 10/14, cystoscopic examination shows a pedicled tumor, ulcerated and bleeding, projecting from the left side of the prostate into the bladder. 10/15, perineal prostatectomy and removal of growth. Microscopical examination by Dr. Black demonstrated it to be a simple adenoma which had undergone inflammatory changes. Perfect recovery of bladder function.

XIV. The most natural place to discuss hematuria due to the presence of stone in the bladder is in juxtaposition to that following tuberculosis, for the latter mimics the former, in all of its symptoms, so closely that many a man has been, where dependence has been placed upon the classical symptoms, cut open for a calculus that did not exist. Of course the two conditions may exist together, which is doubly distressing.

XV. I have seen vesical stones, almost pure urates, so smooth, that I can conceive how they might lie in a healthy bladder for a long time, and gradually increase in size, without causing cystitis or hematuria. But in an experience of about 150 vesical calculi I have in each case found blood present in the urine, but not by any means always in quantities that could be recognized by the naked eye. But to be sure of the presence of stone one must strike it with the searcher, see it with the cystoscope, or grasp it bimanually.

XVI. In the absence of bilharzia and hemophilia, about the only other causes of hemorrhages from the bladder is a new growth, either malignant or non-malignant, and the

difference is often difficult of distinction; for all tumors occurring in the bladder are, however innocent they may appear, under the ban of suspicion.

In a papilloma the bleeding is usually symptomless. In a carcinoma or epithelioma it may be painless or painful, according to the amount of infiltration and stiffness of the detrusor, and of the presence or absence of ulceration and vesical infection. In either case the hemorrhage is apt to follow compression or tearing of the tumor by forcible contraction of the muscles of the abdomen upon the bladder, that viscus being partially filled with urine, and the muscular effort being great, usually in the effort to avoid a blow or jolt or a fall. After an interval of rest the hemorrhage may subside entirely and the case remain symptomless for years, and then another and freer hemorrhage take place.

3/14/'06. G. R. C., 60 years old, speculator. Four years previously he had a severe hematuria which lasted two weeks. In February of this year he helped lift a heavily-loaded wagon from a rut where it was mired, and immediately afterward passed a large quantity of bloody urine. This also subsided, under rest and the use of ergot and hamma-melis. He consented to a cystoscopic examination, at which time a large and long-pediced papilloma was found. Operation at the time was refused, but later requested, during an intense hemorrhage in June of the same year; this also followed great exertion. The tumor was removed by excision through a suprapubic wound. The man is still alive and there has never been any more bleeding.

The painless hemorrhage of carcinoma of the bladder before infection is very well instanced in the case which follows:

11/26/'04. Mrs. George S., 67 years of age, patient of Dr. Follansbee. At fifty-nine had her first attack of hematuria, which was painless. After this came other hemorrhages at irregular intervals. Within the past two years any unusual exertion, or even the taking of a warm bath, would be followed by the appearance of blood in the urine, but there was no pain until about ten days ago. 11/23, cystoscopic examination; a large papillomatous growth with a short, broad pedicle was seen on the right upper quadrant.

11/29, suprapubic cystotomy; removal of the large growth and four lesser ones by excision; many smaller nodules were found and destroyed by rongeur and cautery. The large growth was a carcinoma; the lesser ones papillomata. I saw this woman in the spring of 1907. She had been very well, without hemorrhage or pain, in the interval.

But occasionally pain may be complained of from the start in carcinoma, and hemorrhage is irregular and not very great, requiring microscopical examination for its detection. I have noticed this several times where the vault of the bladder was the seat of the affection. The pain is not like that of stone and does not disappear with rest; is constant and in the same place, and is not unfrequently referred by the medical examination to adjacent organs, as witness this case:

3/12/'08. L. A. McK., 43 years old, mining operator, referred to me by Dr. Rose Bullard. He has suffered for years with pain in the bladder and over the middle of the abdomen, chiefly on the right side. Urinary frequency has been present all of the time and has now increased until it is every fifteen minutes. The pains were referred to his appendix by a medical adviser, and in November, 1906, this organ was removed, but no relief followed. His urine is acid and contains pus, bacteria, and a moderate quantity of blood. With a cystoscope a large growth, with a broad flat pedicle, can be seen upon the right side of the bladder vault. Operation deferred.

XVII. In rupture of the bladder there is always hematuria. This condition is easy to surmise, as it is occasioned almost invariably by great physical violence to the pelvis, and often accompanied by fracture of the pelvic bones. The bladder is usually full at the time of the accident, and its contents escape either intra- or extra-peritoneally. In either case some urine is passed from time to time or is withdrawn by a catheter. Fluid introduced will nearly always escape through the laceration. Immediate surgical measures for its treatment are imperative. The tear should be sought, without loss of time, through a suprapubic opening, which is best made into the peritoneal cavity.

XVIII. In the hypertrophied bladder of urethral ob-

struction, if great care is not exercised in the primary use of the catheter, irreparable damage is often done by the too rapid removal of the negative pressure from the blood-vessels; the resulting hematuria may last for a very long time, or even be fatal.

XIX. Hemorrhage from the ureter: When we see blood puff forth from the mouth of a ureter, like red smoke from the stack of a locomotive, is it possible to speak confidently of the lesion which produces it as urethral? Except in rare instances, no. This is as far as we can see. Beyond this point the best we can do is to locate a stone, by aid of the magic power of the Roentgen ray, or by the passage of wax-tipped sounds into the ureter. That there is no obstruction can be told by the free entrance of a catheter to the pelvis of the kidney. But this does not assure us of the non-existence of a growth, or a tuberculous ulcer, in the ureter; nor is there any essential difference between the attacks of colic induced by the passage of a slough from a tuberculous lesion, a calculus, or a blood clot large enough, or firm enough, to excite non-rythmical contractions of the tube. Lesions of the ureter itself, a simple sewer pipe, are uncommon, and when a hemorrhage is once located as coming from either ureteral mouth it may confidently be assumed in nearly every case that we have to deal with a diseased or injured kidney, and this brings us to the discussion of the causes of renal hematuria.

XX. The kidney substance, lacerated or torn by force; its mucous membrane irritated or torn by the pressure of a stone; deposits of tubercle in the cortex with congestion, or in the pelvis with causation and the formation of slough; malignant tumors infiltrating its tissues; angiomatous degeneration of a pyramid; diseases of the adrenal; displacement; a shower of uratic or oxalic crystals; papilloma, multiple cysts; echinococcus; nephritis, acute and chronic; and sometimes a trophic change, which may not be detected by the microscope, but nevertheless exists and allows the blood to drip through the tissues as water from a sponge, may be the cause of the bloody urine. To these may be added the effects of such drugs as turpentine, phenol, and the Spanish fly.

XXI. Fracture of the kidney has been known to follow: 1. A push or blow against the abdomen or body; the individual moving strikes against some object, or the individual being still is struck by some moving object; the injury is usually in proportion to the force exerted, but not always. 2. By lateral pressure, the body being caught or squeezed between two opposing forces. 3. By sudden compression of the organ against the spine or ribs in the exertion of great muscular effort, as in wrestling or severe lifting, in which the person is obliged to stoop and lift directly upward. 4. By transmitted force; the kidney being thrown suddenly, by the tensely contracted abdominal muscles and the diaphragm, against the ribs and the spine. Fortunately the kidneys are so placed and protected that this cause of hematuria does not often obtain; such injuries, according to Kuster, constituting less than 0.03 per cent. of all surgical diseases. They are always serious injuries, and whenever hematuria follows an accident of the nature I have described, cystoscopic examination, if the source is not self-evident, should be immediately made, and the kidney at fault cut down upon and mended if possible, or removed; for if there is enough injury to cause the appearance of blood in the urine the capsule of the kidney will also be found torn, and blood and urine will escape into the surrounding cellular tissues. Delay in such cases means long invalidism and often death.

8/10/'06. Jno. M., 40 years of age, shopkeeper. Injured in a trolley wreck, after which he was unconscious for two days. Bloody urine drawn by catheter soon after the accident. When he recovered consciousness he arose and walked to the toilet, after which he passed a large quantity of liquid blood. 10/30, all hemorrhage had ceased, but the urine contained pus. He came under my care 11/14, with recurrent hemorrhage, chill and high temperature; thoroughly septic. I made a lumbar incision, and at the bottom of a perinephic effusion of clotted blood, pus, and urine, found the kidney, which was torn transversely from before backward, a little above the middle of the organ. The separation was almost complete, the poles were united only by the tissues of the hilum and a thin piece of the cortex. The

lower fragment was split longitudinally and posteriorly, almost two-thirds of its length; and there were also several star-shaped fractures. There was no chance for a successful plastic operation, so the kidney was removed. Recovery.

An artery of considerable size may be torn, and the hemorrhage, alarming at first, may become stilled. In intervals of apparent progress to recovery, after some exertion, the thrombus may be displaced, and there may be repeated hemorrhages which result in extreme debility, anemia, and infection.

10/20/'02. J. M., farmer, patient of Drs. Dilworth and Beckett, 38 years old, was thrown from his buggy in a runaway accident and struck his right loin against a heavy piece of wood. A few minutes afterward he was found greatly shocked, pale, collapsed, and suffering exceedingly from pain in the abdomen. Two hours afterward he passed 1800 c.c. of bloody urine. The shock was prolonged, and any exploratory operation was deferred. At the end of a week he had a second bleeding, so profuse that unconsciousness followed. A ureteral clot was again formed, and so at intervals of five to seven days he had recurrent hemorrhages until December 21, when I saw him, in consultation with Drs. Dilworth and Beckett. The urine contained blood and pus, and there was a marked tumor in his side. The kidney was cut down upon and found lying at the bottom of a perinephric cavity containing blood clots, pus, and urine. It was torn irregularly across its body a little above the center, and standing up in the ragged tissue was a large arterial branch that had been torn squarely across by the force of the crushing blow. The reason for the relapsing hemorrhages was plain. At intervals the clot in this vessel would become dislodged by some muscular exertion following the accumulation of a little strength. Even as we examined it the clot was forced out and it commenced to spurt. We ligated it, freshened the torn edges of the kidney and brought them together with a few catgut stitches, thinking we might save the kidney. The wound was drained, but infection was too great, and on January 19 Dr. Beckett removed the kidney. Recovery complete and uneventful.

XXII. Hemorrhage from the kidney may be painful or painless. Renal calculus is commonly painful, but not necessarily so. Uratic stones are sometimes so smooth that they may be in the kidney a life time and give rise to neither pain nor bloody urine, unless ascending infection from the bladder, or tuberculosis, attacks the kidney; or the stone, being small, engages in the infundibulum of the ureter, produces congestive contractions and ruptures some small blood vessel. But stone in the kidney is often accompanied by atrocious pain; and if rough or branched, blood may be found by microscopic search at all times; while after muscular exertion, profuse hemorrhage takes place—this is more particularly the case in the presence of oxalate stones, the crystals of which, set at irregular angles, are as sharp as glass.

To establish a diagnosis, resort should always be had to a skiagraph of the kidney and ureter upon the side painfully disturbed. But even when once obtained, full reliance may not be placed upon the shadow, for sometimes this agent is tricky, showing stones where none exist. The following case illustrates this point well, while also it may be used to illustrate the hemorrhage of malignant tumors of the kidney:

12/7/'07. M. J. S., 49 years of age, miner; patient of Dr. Baylis. Two years ago, after lifting a heavy weight, a free and painless hematuria appeared. This disappeared after a period of rest. At various times since the hemorrhage has repeated. Painless at the outset, after a few hours it is always followed by an intense right-sided renal colic, which lasts from three to ten days. During the past six months the intervals have lessened and the amount of blood lost has been greater. No pain in the bladder and no increased frequency or urination. An inspection of the interior of the bladder shows it to be a healthy viscus and both ureteral openings to be of normal size and appearance. Urine obtained from the right ureter contains some blood and pus, but no other cells, casts, or organisms. A suggestion of exploration of the right kidney was declined. 1/9/'08, hemorrhage repeated. From the character of each hemorrhage at its onset, I told him I believed his trouble to be a papilloma, probably non-malignant, projecting into the pelvis of

the kidney, the pain being caused by the subsequent pressure of the clotted blood. We had a skiagraph taken, which is presented herewith, and from it the diagnosis of stone was made. The picture shows four shadows, two in the kidney and two in the ureter. 1/16, nephrectomy through an Abbé incision; exploration of the ureter being deemed necessary. As soon as I seized the kidney I found I was dealing with a malignant growth and removed it entire. There was no stone in the kidney substance and none in the ureter. What caused the shadows? I do not know. The tumor is a misplaced adrenal which had grown through the lower pole of the kidney, from the outer side, penetrating the pelvis, and there forming a soft polyp, practically a papilloma, which was the source of the blood in the urine. Recovery was prompt and perfect. This brings me to a case of malignant renal growth which was believed to be pyelitis occasioned by calculus.

2/10/'07. E. E. N., 36 years old, bank cashier; patient of Dr. Hamman. For three years he has had dull pain in the left loin, which at intervals became colicky, and was accompanied by blood in the urine. He has never sought medical aid but once, and then he was told that his trouble was kidney stone. For several weeks he has been unable to work, has had temperature, chills, blood in the urine in small quantities, and during the past few days some pus. The whole of the left side of the abdomen, and about one-third of the right side, is occupied by a tumor which makes these tissues and those in the loin bulge like a drumhead; the superficial veins over its whole surface are enlarged from the interference with the circulation by its pressure; its bulk, interfering with the play of the diaphragm, has increased the respiratory rhythm to 30 per minute; he suffers from colic by the interference of the tumor with free exit of gas from the intestines, and has not had a passage from the bowels for a week, despite the administration of severe cathartics. He is emaciated from inability to take food. The tumor, examined bimanually, seems to fluctuate. He was believed to have a great abscess of the kidney from the ureter being obstructed by a stone, or a malignant growth, perhaps both, with the

preponderant history in favor of stone. The kidney was cut into by a free, straight incision in the back. It was adherent to the muscle plane. When the capsule was cut through and a pair of forceps preceding the exploring finger was pushed deep into the kidney substance the blood spurted forth like water from an artesian well. I thrust my finger down into the pelvis of the kidney, seeking the stone and the pus, but there was none there. The tissue was as friable as rotten sponge and broke into masses in all directions. It was sarcomatous. I packed the wound and left everything open, the better to relieve tension. After the operation the breathing became of normal frequency, gas was passed, the bowels moved in a few hours, and all pain ceased. When the great tension was relieved it was noticed that the lymphatics in the skin of the abdomen and in the groin on the left side were enlarged. He was given Coley's fluid for about four months. The tumor and the swollen glands disappeared, and the following September his physician reported him to me as well and working at his desk in the bank.

Case reports are made from time to time of persistent one-sided hematuria in which, after the splitting of the kidney in situ, or its removal, no definite pathological change in its tissue can be noted. I have recorded an instance of such indefinite trophic change elsewhere and have referred to the same case earlier in this article.

Fenwick has called attention to another strange change in a limited portion of the kidney structure, which, easily overlooked by the uninstructed, provokes serious hemorrhage and is readily cured without removal of the kidney. I refer to angiomatous changes in one of the papillae.

1/29/'07. O. A. C., 45 years old, printer; patient of Dr. Hamman. Two weeks since he was attacked with a symptomless hematuria, which has been continuous and extremely severe. Cystoscopic examination shows a healthy bladder and the emission of blood from the left ureter. 1/21, examination of the kidney and ureter through an S-shaped incision in the loin. As no clots could be seen coming down the ureter when it was rolled up on the peritoneum, it was opened and explored toward the bladder, while a

small silk catheter was passed up to the pelvis of the kidney. No obstruction was felt in the pelvic part of the ureter, and the water used to flush the tube was not stained with blood as it issued from a catheter in the bladder. A very few drops of blood came from the catheter in the kidney. The kidney was brought out upon the side, split open from pole to pole, and the entire pelvis and each calyx with its pyramids examined closely. Everything was normal except a portion of one papilla in the upper pole; this was dark purple in color and bled continuously. It was removed by a wedge-shaped incision, the sides were united by one stitch of fine catgut. The incision in the ureter was closed over a catheter, which was withdrawn through the pelvis of the kidney. The mucous membrane of the pelvis was approximated by a few fine interrupted catgut sutures, and the two sides of the kidney brought together with a double row of mattress sutures tied loosely, and the wound drained by two ample cigarette drains, which were withdrawn, in two and four days, respectively. Recovery uneventful and complete. No hematuria since.

Tuberculosis of the kidney is frequently the cause of hematuria of varying grades, depending upon the amount of tissue involved, the stage of the disease, whether miliary or caseating, and in the latter case upon the progress and situation of the ulcerating surface. In the hemorrhage which occasionally accompanies a thickly sown eruption of miliary tubercles in the cortex, the hemorrhage of congestion, pus has preceded its advent for some time, and the pain is only a dull ache in the back. Where a caseating nodule or gumma breaks down and erodes a fair-sized blood vessel the hemorrhage is frequently great and prolonged, but is rarely or never painless, for the clots and sloughs obstructing the ureter give rise very quickly to attacks of kidney colic. But in cases of long standing though symptomless tuberculosis of the kidney with palpable tumor, we see, rarely enough, a painless and abundant hematuria which arises from a fine granulomatous growth, gelatinous, really polypoid, which fills the pelvis of the diseased organ like moss.

3/7/'03. F. N., merchant, 36 years old; patient of

Dr. Moseley. He is of good antecedents and without any history of tuberculosis. In the summer of 1899 his horse fell upon him, and the horn of the saddle struck him over the left kidney. Immediately afterward he passed blood with the urine, and has done so at intervals ever since. Often the urine would be clear for a few days, and then a free hemorrhage would take place; this would gradually subside, there would be another interval without blood, and then the hematuria again. He has become very anemic, lost thirty pounds in weight, and is feeble. On February 28 of this year there was an alarming hemorrhage, accompanied by much pain and a rise of temperature, and a tumor could be felt in the left loin. Cystoscopic examination shows a healthy bladder. Blood-stained urine issues from the left ureter. Urine acid contains some pus and blood, but no tubercle bacilli. 3/13/'03, nephrectomy. The kidney was very large and very adherent. It was tuberculous and filled with large caseating masses; its pelvis, which was greatly enlarged, was filled with a large gelatinous mass of small polypoid growths from which the hemorrhages came.

The history is clear: Injury, bruising of the cortex, a tear in the mucous membrane of the pelvis, formation of granulation tissue, polypoid growths, which, easily lacerated, bled easily and frequently; deposit of tubercle bacilli in the injured kidney tissue; formation of tuberculous foci, caseation, chronic inflammation and adhesions. He was entirely well for two months and has remained well ever since.

Multiple cystic kidney is looked upon as such a hopeless disease that the advice is given to always let it alone, and as I can find no record of hematuria being one of its salient symptoms, I report the following case:

9/12/'07. J. B., farmer, 63 years old; patient of Dr. Bacon. Has kidney cachexia. He has been very ill for a month, and running a temperature from 100° to 104° ; has attacks of pyuria and hematuria. Both kidneys are enlarged, the left occupies all of that side of the body, and a little more, and is very tender and tense. The right kidney is enlarged and not tender; breathing and bowel movements interfered with by pressure. Twenty years ago, four years ago, and

one year since, he had similar attacks, in which there was blood in the urine. Systoscopic examination with catheterization of both ureters. Bladder healthy, both ureteral openings enlarged, but neither ulcerated. Urine from right kidney acid, specific gravity 1020, a few pus corpuscles, and a very few red blood cells present. The left kidney secreted nothing. I made a diagnosis of probable bilateral malignant disease.

9/13. Through a long anterior incision the kidney was exposed and found to be a multiocular cyst. All of the cysts that could be reached through the incision were opened and the division walls removed with scissors. Most of them contained clear, some bloody, and some purulent, fluid. The pelvis of the organ was greatly dilated and was full of very thin pus. There was but little bleeding. The pressure was greatly relieved, and pain, temperature, and asthmatic symptoms ceased immediately. The swelling of the right kidney disappeared, and after great trouble, for he was very feeble, the wound healed, and without suppuration. He made a good recovery and is apparently well, at least well enough to get some pleasure out of living and to transact business.

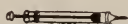
In dislocated or movable kidney abundant hemorrhage occurs from time to time, and is usually painless, and probably induced by pressure congestion from obstructed circulation.

2/19/08. Mrs. D. H. W., 39 years old; patient of Dr. Sheppard. Has had painless hematuria for two weeks without great urinary frequency. She has pain in the back, which is worse in the left side. There are no other subjective symptoms. Both kidneys are enlarged and both displaced; the right is a true floating kidney. Cystoscopic examination: Urethra and bladder healthy, blood to be seen issuing in steady, regular jets from the right ureter. Operation deferred.

Echinococcus is said by some to be a cause of renal hemorrhage. I have never met a case, but one would think that in the microscopic examination of the urine the hooks would be surely found at one time or another. Nephritis, too, either acute or chronic, frequently is the cause of hematuria. But

in chronic nephritis, even if it be one-sided, there is the albumen, which is present after the precipitation and removal of the blood; there are the casts in the intervals of the hemorrhages, and also the cardiac and stomachic symptoms to aid in diagnosis. Still there are some cases of chronic Bright's in which one-sided persistent and depleting hemorrhages have been reported which must be very puzzling. It is to be recollected, however, that surgical interference, at least so far as the relief of tension by splitting the capsule, can do nothing but good. I have thus endeavored, my dear colleagues, to present to you the subject of hematuria, illustrated by cases which have been interesting to me, and which have helped teach me the complications of a subject simple in itself but very diversified as to its anatomical origin and histological causes.

In the treatment of this symptom, usually surgical, surgical measures are to be employed. But even so, to gain time, the use of epinephrin, argot and hammamelis; morphia when needed, a bland diet, and above all rest is not to be overlooked. Absolute forbiddence of all alcoholic stimulants is necessary.



REMARKS ON SPERMATOCELE.

By PROF. VON POSNER, Berlin, Germany.

THE extremely instructive and interesting article by Dr. Charles M. Whitney, which appeared in the May, 1907, issue of the AMERICAN JOURNAL OF UROLOGY, has induced me to report in brief several personal experiences with spermatocele.

In the first place, I would point out that this is quite a rare affection and at this time of writing, I can only recall four cases in my personal practice. All the external signs were those of hydrocele, neither the form nor size of the swelling gave rise to any other suspicion, and particularly the transparency was quite as strongly marked as in hydrocele. I have used with great advantage, a cold lamp made by the firm of Louis von H. Loevenstein. It is a thick glass tube attached to an electric lamp, the light being used in total

reflection. This lamp can be placed directly upon the skin of the scrotum and, when in a darkened room, one can distinguish not only the glowing red glistening cavity, but also the deep shadow of the testicle, as well as the blood vessels, all of which is of great importance when selecting the point of puncture.

It is only by exploratory puncture that one discovers that he is not dealing with a hydrocele. The various forms of fluid are well shown in Whitney's plate, that of spermatocele having a slightly milky opalescent cloudiness. Naturally, one can only recognize with a microscope whether or not this cloudiness is due to the presence of many spermatozoa; besides other causes given by Whitney (fat and pus), the cloudiness may be the result of the presence of cholesterol which, as is well known, is present in large quantities in hydrocele fluid. This is usually made evident by a peculiar glistening, due to the crystals.

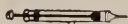
The assertion often advanced, that spermatozoa may occur normally in the fluid of hydrocele, I can vouch for by very numerous personal observations. In dry preparations one usually finds quite a scanty sediment containing flattened epithelium, or rather endothelium, or, in other instances, almost only giant cells, corresponding to the character of the fluid. Besides, there are a few red blood corpuscles coming from the scrotal wound made by the needle. The possibility that by puncture of the testicle a few spermatozoa escape into the fluid can never be entirely excluded, but, if a technically correct use of the needle is made, this cannot occur. If many spermatozoa are found, one must assume that there has been a rupture of a spermatic cyst, or a vas aberrans. Such cases form the transition to true spermatocele. Most interesting to me is the fact which Whitney also points out, though not taken from his own cases, that the spermatozoa in the fluid of a spermatocele often show active motion and retain it for hours after the fluid has been withdrawn. In two of my cases this phenomenon could be distinctly observed; the motility did not differ in any respect from that of spermatozoa found in freshly ejaculated semen. This well known, but not sufficiently observed fact, proves that in

the testicle and the scrotum, the spermatozoa may already possess that quality which is necessary for fecondation, and that for this purpose, they do not necessarily require the addition of the prostatic secretions. To prove this, I wish to especially recall that at one time I also found movable spermatozoa among a large number which were immovable, this observation being made before the introduction of my "diagnostic puncture of the testicle."

It is my belief that here the physical more than chemical conditions should be imputed; surely in this respect the osmotic pressure affects them so that any hyper- or hypotonia of the surrounding fluid has an inhibitive effect upon these delicate structures, which can manifest their vitality only in certain isotonic media.

Regarding the chemical composition of spermatocoele fluid my experience coincides with that of Whitney. Vertera has reported a case observed by me which, as it is especially interesting, I would like to emphasize the fact that quite a marked difference existed between the sperm and the fluid of spermatocoele. The reactions obtained by Florence and Barberio which occur so promptly in the sperm, do not take place in the fluid of spermatocoele. Besides, the albuminoses, so characteristic of the sperm, are not found in the spermatocoele fluid and the same may be said of the Schreiner base. It is remarkable that just what seems to us so especially specific in the sperm and of its vital consistency, should be so independent of the spermatozoa.

Regarding the progress and treatment of spermatocoele I have nothing to add to the excellent remarks made by Whitney.



TYPICAL CASES OF SPERMATORRHOEA.

By F. M. JOHNSON, M. D., Boston, Mass.

CONSIDERABLE has been written about spermatorrhœa, a term which is used to denote a pathological discharge of semen. While some authors consider this affection to be rather common, others believe it to be rare, and still others deny its existence altogether, affirming

that all so-called spermatorrhœa are in reality only cases of prostatorrhœa. Judging from my own experience, this functional disorder is not at all rare.

It occurs in young or middle-aged men, and may last for quite some time before the symptoms which it produces are sufficiently marked to be noticed.

In the four illustrative cases to be reported, the histories, clinical pictures, result of urinary examinations and treatment are identical. In this brief paper it has been my endeavor to broadly state such salient factors which may be of some interest, rather than to describe each one separately. Two of the patients were young, unmarried students, 24 and 26 years of age, respectively, while two were married men of 32 and 35 years.

All appeared to be in good physical condition, and not one of them had ever masturbated to any extent.

They all seemed to have normal sexual desires.

Two complained of persistent erection without any feelings of pleasure and not relieved by ordinary measures.

Rather vague nervous symptoms and irritability had existed for several months.

Feelings of weakness across the back and in the legs, mental irritation, an inability to concentrate the mind, and an absence of will power, together with sexual debility, loss of appetite and loss of power during the sexual act were present and more or less pronounced in every case.

The involuntary discharge of a varying amount of fluid which, upon examination, proved to be semen, always at the end of defecation and usually upon urination, was the most pronounced feature, and the one for which advice was sought.

Each one had for several years made use of the condom at every intercourse, believing such use to be without harm. This factor, however, to my own mind was the chief causative element.

Continued use of condoms has, in my experience, often resulted in the nervous breakdown of even both partners in the sexual act. The students fearing disease considered themselves safe. The married men, not being able in their home

life to satisfy their desires, owing, as they said, to prolonged illness of the wife, and fearing conception when they were with other women, supposed that the use of the condom offered them ample protection. Examination of the genitals showed nothing abnormal in any respect.

Microscopical examination of the urine gives practically the same features in all cases:

They were the following: Presence of spermatozoa in large numbers; the existence of a chronic prostatitis, as shown by the presence of pus corpuscles; epithelia from the prostate gland and its ducts and fat globules; epithelia from the ejaculatory ducts and seminal vesicles in small numbers; mucous in large amounts in all of the cases, and abundant cylindroids or mucous-casts.

Heitzmann of New York has called attention to the liability of mistake arising from confusing the mucous-casts with the true hyaline casts.

In one of the cases the truth of Heitzmann's statement was fully demonstrated.

This patient had applied for life insurance, but had been refused.

In the reports upon the examination of his urine, after several examinations had been made, the statement was made that a very slight trace of albumen, a low specific gravity, and quite a number of hyaline casts were present. The case was supposed to be one of an incipient interstitial nephritis.

Personally no distinct trace of albumen was discovered by myself, neither could any kidney elements be found, but the mucous-casts were abundant. The specific gravity varied greatly in different specimens.

Since the cure of the spermatorrhœa the examination of his urine showed a perfectly normal condition.

Treatment: Use of the condom absolutely condemned and prohibited; employment of tonics, good diet, exercise, camphor monobromate, the bromides or hyoscyamus at night. Locally, the rectal vibrator, plus a mild sinusoidal current every third or fourth day.

After one or two treatments an improvement commenced to be noticed and the stubborn erection spoken of in two of the patients disappeared.

In about seven to eight treatments spermatozoa could no longer be found upon microscopical urine examination, and there was no discharge after urination. In less than two months all symptoms disappeared and every one of the patients fully recovered.

Although each case has been under observation from time to time, no recurrence has occurred.

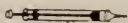
Conclusions:

1. The continued use of the condom seems to bring about ill results in many cases.

2. The rectal vibrator and the sinusoidal current give far better results than prostatic massage and stripping of the seminal vesicles with the finger.

3. Careful microscopic examination of the urinary sediment enables an absolutely correct diagnosis to be reached.

43 Tremont St.



DUAL MALIGNANCY IN THE PENIS.

Reported from Dr. Albert Vander Veer's service at the Albany Hospital, Albany, N. Y., by J. N. Vander Veer, M. D., and C. W. Louis Hacker, M. D.

THE accompanying case of dual malignancy in the penis is of such rarity that it would seem well to place this one on record. Though it is especially interesting from the pathological standpoint, still there are a few points in the history of the case which might be worthy of mention.

The patient, Mr. A. S., aged 77, native of the United States, a widower, entered the hospital in September, 1907, complaining of a growth on the penis, left side near the corona, about the size of the end of one's thumb, which was slightly eroded at its external surface.

Father and mother both died at advanced age from natural causes. Two half-sisters are dead from tuberculosis, and one half-sister died at the age of 88 of cancer of the breast. Otherwise his family history is unimportant.

At the age of 37, Mr. S. suffered from pneumonia twice. Further than this he has had no diseases save the usual ones of childhood. Has no venereal history; uses tobacco moderately and no alcohol whatever.

Regarding the present illness, he states that some fifteen years ago, when 62 years of age, he had gravel, and one of the stones lodged in the urethra near the head of the penis. Efforts to dislodge this were unavailing, and so the patient smashed it between his fingers, thus bruising the head of the penis. Following this bruise an ulcer formed, and the patient took care of this himself, cleansing it as often as he thought necessary. Some three or four years later, or at the age of 66, the meatus became entirely closed, and a physician slit up the prepuce and turned it over on each side, sewing it down onto the remaining portions of the foreskin. In this manner two pockets formed, one on either side, and by reason of uncleanness, pus eventually lodged here making it necessary to clean the organ every two or three hours. This condition lasted for some eight months, when a second physician saw him, removed the scabs which had formed over the ulcers and cleaned out the resultant ulcers and sinuses. Fairly good recovery resulted. When 76 years old, or some fourteen years after the original injury, patient noticed that the ulcers were forming again at the head of the penis and consulted a third physician for the condition. At this time a small pedunculated tumor had formed, and this was removed by means of a suture and caustic, being extremely painful for some four or five days. Following this method of eradication, the patient treated himself quite frequently with caustic, and noticed that the tumor kept enlarging, and bled freely. In April, six months before coming to the hospital, he again consulted his last physician, who clipped off the tumor at its base and removed it. He was perfectly free for some four months, when the growth returned once more, larger than before, presenting the same symptoms of pain and bleeding, together with rapid growth, the two former symptoms being especially present on a warm day. Further than this the patient is entirely free from any bad results, his bowels, appetite and urinary symptoms being normal, other than those accompanying old age, and that he is compelled to urinate about twice each night.

Examination of the growth shows that just back of the glans on the left side is a tumor about the size of a walnut,

with an eroded surface resembling that of a strawberry and giving the appearance of a typical epithelioma of the penis. No enlargement of the inguinal glands can be found, and the prostate appears to be normal by rectal examination.

Some two days after entrance to the hospital an amputation was done through the posterior third, dissecting forward a good sized portion of the urethra, which was then split and turned back upon the stump and sewed over with chromocized catgut.

The patient made an uneventful recovery, and was discharged from the hospital at the end of three weeks, with an excellent result. Since then communication with him has shown that there has been no recurrence and that in all ways the result of the operation is eminently satisfactory.

As is customary, the specimen was sent to the Bender Laboratory for pathological examination, with the diagnosis of epithelioma of the penis; and, much to the surprise of those interested in the case, a report, which is appended in detail, was returned, showing that there was a dual malignant growth, by microscopical examination.

PATHOLOGICAL REPORT OF C. W. LOUIS HACKER, M. D.

Instructor of Surgical Pathology, Albany Medical College, Albany, N. Y.

GROSS DESCRIPTION. Specimen consists of a glans and portion of penis, measuring 3 c.m. in length. Attached to the glans just below the meatus and close to the frenum is a firm nodular mass measuring approximately 1.5 x 1.5 x 1 c.m. The superficial surface is pinkish gray and granular. On section the cut surface is smooth, glistening dark pink and at its base gradually fades into the adjacent glans.

MICROSCOPIC DESCRIPTION. Sections are through nodules and glans penis. The tissue of the nodule is very cellular throughout. The cells are indistinct in outline except at the base, where considerable edema is present. Here they are long and spindle-shaped. Toward the surface the cells, in places, are arranged more or less to form interlacing bundles. In places, especially toward the base, a small amount of intercellular substance is present. At the base consider-

able hyalin degeneration is to be noticed. The nuclei of the cells toward the base of the nodule are large oval and contain a small amount of chromatin, while towards the surface they are long, slender and deep staining. Many of the larger nuclei contain nucleoli, and occasional mitotic figures are to be seen. Occasional large multi-nucleated cells are also present. The tissue is very vascular, especially toward the surface, where the capillaries are dilated and present a delicate, indistinct wall. Numerous wandering leucocytes are present in the tissue. Superficially necrosis is present, while on either side the nodule is covered by epithelium, which is continuous with that covering the glans. In the connective tissue at the junction of the nodule and glans penis are numerous irregular groups of densely packed polygonal-shaped cells, which in places have a more or less concentric arrangement. The nuclei of these cells are large, round or oval. Between these groups a small amount of fibrous connective tissue is present, in which are a few similar cells having no definite arrangement. Superficially in the connective tissue of the glans are many plasma and small round cells, also a few epithelioid cells and new formed capillaries.

MICROSCOPIC DIAGNOSIS. Fibro-sarcoma of glans penis with squamous cell carcinoma.



AMPUTATION OF PENIS IN A CASE OF SYPHILIS

By DR. M. L. HEIDINGSFELD, Dermatologist to the Cincinnati Hospital, Cincinnati, O.

J. R., aged 33 years, was admitted to the Cincinnati Hospital February 6th, 1908, for an ulcerated condition of the stump of the penis, which had been amputated some sixteen months prior to that time by a physician of Savannah, Ga. There were three ulcers present on the amputated stump, the largest one, which was semi-lunar in outline, extended on the right side from the anterior median line to the posterior raphe. The anterior border of this ulcer was shallow and concave, the posterior deep and convex, with an infiltrated border. The two smaller ulcers on the left side were irregular in outline, and partook of

the same general character of the ulcer previously described. All of the lesions were characteristic of tertiary syphilis. Patient stated that the physician under whose care he placed himself at Savannah, had his case under treatment for almost a month, at the end of which time he pronounced the ulcer on the glans penis, which had made no favorable progress, an epithelioma, and amputated the penis close to the abdomen. Patient on his admission was laboring under the impression that he was suffering with a recurrence of the malignant condition, and sought admission and attention in that special direction. He denied with every air of conscientious frankness all knowledge of a previous venereal infection. The neighboring lymphatic glands showed no appreciable enlargement. The entire forehead from eyebrows to scalp was the seat of a diffused induration, irregularly circular in outline, and studded with numerous irregular and kidney-shaped pigmented cicatrices, varying from a silver half dime to a spit pea in size. A number of active indolent ulcerations were interspersed in this area, and grouped for the most part near the anterior border of the scalp. The lesions on the forehead were unmistakable in character and typically characteristic of tertiary syphilis. Patient stated that the forehead became involved shortly after the penis had been amputated.

As soon as patient was admitted to the Cincinnati Hospital he was placed under vigorous constitutional and local treatment for syphilis, consisting of injections of one grain of metallic mercury finely suspended in lanolin, administered every other day into alternate buttocks, iodide of potash in 100 to 180 grains daily doses internally, and mercurial ointment locally b. d. over the active lesions. Patient made a rapid and uneventful recovery, and was discharged March 14th, 1908, with all active manifestations entirely healed.

The case illustrates that a not uncommon error had been made in diagnosis, and that an unnecessary amputation of the penis had been performed as a result of the fact that if lues had been suspected the treatment must have been half-hearted and incomplete in character. The patient was unable to inform me the exact nature of his preliminary treat-

ment further than that he was taking pills internally, teaspoonful doses of a liquid preparation, and was applying an ointment locally. In a case of this character it is impossible to determine how much of the treatment administered was essential to bring about a successful result. It must be conceded, however, that failure in a result in many suspected cases must not be determined absolute until treatment has been tried in all its various phases, and pushed to the utmost limits to the point of tolerance on the part of the patient. The case would also possess considerable more



interest and practical value, if certain features were better understood; namely, how much, if any, reliance was placed on the negative history by the attending physician; the clinical character of the lesion on the glans penis; the character of the treatment, and the energy with which it was administered. It has already been stated that the characteristic and

confirmatory lesions over the forehead were not present when patient sought his first attention, and this coupled with other signs of negation doubtless influenced to some extent the course pursued.

The modern-day trend toward insoluble injections in the treatment of tertiary syphilis, and the not uncommon experience that they often effect a favorable result in cases where iodides and other forms of treatment have not been successful, should make their administration an essential in all suspected cases of a doubtful character, and particularly those where much depends upon a correct opinion.



THE PATHOLOGY OF GONORRHEAL PROSTATITIS.

THE prostate being composed of glandular and connective tissue it is quite evident that both these elements may be the seat of an inflammatory process, but when one of them becomes diseased, the other does not remain for any length of time in a healthy condition, so that prostatitis is always a mixed process, with a predominance of inflammation in one or the other of its constituent elements.

When one is accustomed to massage of the prostate, he soon learns that the diseased organ presents one or two types. In the first, the gland is greatly enlarged, soft and of uniform consistency, pain on pressure being very slight. In this case massage will express quite an amount of fluid. In the second group the prostate is of much smaller size, having an unequal consistency, with indurated foci which, on pressure, are extremely painful. In this class of cases the amount of liquid secreted is small and sometimes will not even be able to express any directly from the gland, but, on the other hand, numerous filaments will be found in the urine. In the first class of cases inflammation of the glandular tissue is more marked than that of the interstitial tissue, while in the second category, the contrary is the case.

The few autopsies that have been obtained do not allow of a perfect description of the macroscopic and microscopic lesions which are present in chronic prostatic gonorrhea, but, from what has been learned, they may be briefly described as follows: On section of the prostate it will be seen that the normal tissue has been replaced by areolar tissue filled with lacunæ, formed by traberculæ which have become anastomosed in every direction and circumscribe the areolæ of variable size. Small cysts are frequently encountered in the fibrous tracts, all this tissue being impregnated with a viscid liquid and some of the areolæ which have developed in the small cavities, are filled with muco-pus.

Microscopically, the glandular and interglandular lesions are to be noted. As to the lesion of the glands, a proliferation of the epithelium of the culs-de-sac is remarked, which fills the cavity of the gland and to which numerous leucocytes become added; then the suppurative destruction and disappearance of the epithelium takes place. As to the interglandular lesions, we have first, an infiltration of the interstitial tissue with leucocytes and then a periacinous sclerosis occurs, and by the formation of bands of fibrous tissue, it extends throughout the prostate in every direction, marking off areolæ which have already been referred to.

As to the pathogenic agents of all these disorders, it must be admitted that they are numerous, but the part played by the gonococcus is not always a preponderant one, as might be inferred. The microbiological search should be undertaken with certain precautions and it is quite necessary that one should know exactly if the pus to be examined really comes from the prostate, and in order to be certain on this point, it is the greatest necessity to rid the urethra of the secretion that it may contain. Consequently, the patient should be requested to urinate, and thus the first cleansing of the canal is accomplished. Then an abundant urethrovesical irrigation is given, with, for example, a solution of potassium permanganate, which the patient should expel from the bladder, and, if it does not return absolutely clear, a second lavage should be given. Then, by rectal massage, the prostate is milked and the secretions coming from the culs-de-sac of its glands will accumulate in the pros-

tatic urethra. An olive bougie is then gently introduced into the urethra as far as the prostatic cul-de-sac and the pus brought back on the bougie must necessarily be that coming from the prostate.

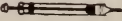
The pus obtained may not contain the gonococcus as might be expected, because this is the case in urethral secretions of an old gonorrhea as well, but which in no way implies that the gonococcus is not the cause of the disease, or at least does not take part in the urethral and prostatic bacterial flora. It often happens that in the same patient one will obtain several negative examinations, and finally the last one will be positive. Thus may be explained, in all probability, the different results obtained by various observers. For example, Krogium only found the staphylococcus in twelve cases of chronic prostatitis, while Finger states that the gonococcus is sometimes the pathogenic agent of the glandular infection, but that, in the majority of cases, there is a post-gonococcic secondary infection. In thirty cases of posterior urethritis and chronic prostatitis, Cohn found that gonococcus in one case, the staphylococcus in eleven, the streptococcus in three, the bacterium in one, some diplococci in two, while in one the bacterium present could not be identified.

On the other hand Franck found in 210 cases that the streptococcus was present in 179, in twenty the staphylococcus and streptococcus were found, while in the remaining eleven only leucocytes could be discovered.

It may be said that no matter what the pathogenic agents be, and whatever may be the cause of such varying results, the prostate is invaded in the same way, namely, that when it presents a condition of lessened resistance it offers the same lesions which manifest themselves by the same symptoms.

Original Abstracts and Translations

HOW TO PREVENT TERTIARY AND HEREDITARY SYPHILIS. N. B. NICOLETOPOULOS, of Constantinople, in a recent article declares that the best method of treating syphilis with a view of preventing the development of tertiary lesions and of hereditary syphilis in the offspring is the method of injections. He has used this method exclusively in his private practice since 1902 and has obtained excellent results. He gives an injection every other day into the buttocks, alternating the injections as to the side used. The preparation which he prefers is the biniodide or the bibromide of mercury and the dose used was at first, immediately after the diagnosis was made, 0.05 to 0.6 gramme at each injection. This treatment is continued for two months and then the patient is allowed to rest for two months. Then he gives twenty injections at intervals of two days and interrupts the treatment for a month each time during the first year. In the second year he makes four series of twenty injections, one every other day with two weeks' interval between. In the third year the intervals last two and a half months each and in the fourth and fifth years two series of twenty injections each are given in the fall and the spring.



"BLACK CHANCRE." J. A. SELENEFF, of Kharkoff, (*Annales des Maladies Vénériennes*, March, 1908), considers this rare form of primary lesion. By black chancre is meant a round sore of the usual characteristics of a syphilitic primary ulcer, save that the surface of it is covered with a black membrane. This membrane is very adherent to the subjacent tissues so that when it is removed, the latter bleed freely. After the covering is removed there is revealed a red smooth ulcer, without any purulent secretion. Usually there is no inflammatory reaction nor any infiltration of the surrounding tissues. The author reports two cases of this remarkable form of chancre; one of these occurred on the skin of the penis, the other on the scrotum. The inguinal glands were very much enlarged but painless. In another

case of black chancre of the upper lip there was complete absence of any glandular enlargement in the submaxillary and the preauricular regions. Some authors have expressed the opinion that the black covering of the chancre is due to a necrotic condition. Fournier however recognized that the black membrane did not indicate true necrosis. The present author does not find it to be due to a necrosis but to a secondary infection with a special micro-organism which he isolated from the back scab of these chancres. This parasite was large in size, polymorphous in character, and had the property of forming some black pigment in its body, while from its surface issued flagellæ which had spiral forms. In cultures on potatoes these parasites grew spores having the aspect of yeast cells. This parasite is in all probability a protozoon, and it is the pigment which it develops that forms the black membrane which is seen on the chancre. In the microscopical preparations shown by the author there were also a number of transition forms of the spirocheta pallida, such as have been described by Hoffmann, Krzystalowicz, etc.



THE IDEAL TREATMENT OF GONORRHEA. Every physician reads with avidity articles that deal with "ideal" or "successful" treatments. They will be disappointed in reading this article, for while the treatment referred to here would be ideal, it is not a feasible one. In 1904, Dr. Burnside Foster of St. Paul, suggested that the ideal, but of course fanciful, treatment of acute gonorrhea would be a button-hole in the perineal urethra which would serve to divert the urine from the inflamed anterior urethra and also would enable a much more efficient local treatment to be applied to the anterior urethra which as we know is at first the only portion involved in the gonorrheal inflammation. He did not recommend the treatment as justifiable, but by accident he was enabled to treat gonorrhea by this method, three times in the same individual.

A Mr. B. P., aged 60, widower, first came under the author's observation in 1898 with a chancre followed by constitutional syphilis which ran a typical course. Although

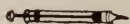
the patient was quite dissipated and was very irregular in his treatment, he reported from time to time for observation, and remained under care and treatment for two full years, at the end of which time there was no evidence of the disease. The patient was not seen again until June, 1901, when he was found to have an ulcerated condition of the penis just in front of the penoscrotal angle, which he said had existed for about a month. This was evidently an ulcerating gumma which finally healed under large doses of iodide of potassium, but before healing it destroyed a portion of the floor of the urethra, leaving a hypospadias with an opening as large as an ordinary lead pencil into the urethra. About three years later, October, 1903, the patient again appeared, this time with an acute gonorrhea involving the anterior urethra. The gonorrhea was of four days' duration and there was a profuse discharge with abundant gonococci. Here was a unique opportunity to try the so-called "ideal" treatment for gonorrhea.

The patient could urinate through the posterior opening and the inflamed portion of the urethra could be readily treated locally and completely isolated from the portion not involved. The anterior urethra was washed from behind forward with a two per cent. solution of protargol, swabbed out with the same solution of ten per cent. strength, and packed tightly with iodoform gauze, repeating the process twice daily for four days. At the end of the fourth day there was but very little discharge and very few gonococci could be found. Four days later there was no discharge, and the patient had no further trouble.

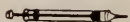
About a year later this same patient again contracted gonorrhea and the same treatment was followed by exactly the same result. In December, 1906, the patient again contracted gonorrhea so that for the third time an opportunity was had of treating him in the same way. The last time instead of protargol a 1 to 500 solution of silver nitrate was used, followed by iodoform gauze packing. The disease was entirely cured in seven days.

This experience would seem to show that if we could confine a gonorrheal infection to the anterior urethra and keep

the urine from flowing over the inflamed surface and could keep the two surfaces of the urethra apart by means of packing, any efficient antiseptic treatment would destroy the gonococci before they had time to penetrate into the deeper layers of the mucous membrane, and would speedily cure the disease.



THE TREATMENT OF CHRONIC GONORRHOEA BY INSTILLATIONS OF SILVER NITRATE, FOLLOWED BY THE INTRODUCTION OF A CATHETER OF ZINC AND NICKEL. Balzer and Tansard (*Journal des Patriciens*, January 11, 1908), base their treatment upon chemical reactions produced by silver nitrate and zinc when in contact with tissues. This reaction is quite complex, for silver is set free, zinc nitrate is formed and also silver albuminate, silver chloride and zinc chloride. The technique is very simple. A few drops of a solution of 1% silver nitrate are instilled into the spot in the canal which is intended to be cauterized. Immediately afterwards, a zinc catheter is introduced and allowed to remain for two minutes. The catheter is removed and the precipitate of silver escapes at the meatus. It is best to use a catheter, the anterior two-thirds of which are of nickel, while the posterior third is of pure zinc. This method of treatment is applicable to cases of urethritis in which there are deep-seated lesions, as well as in strictures. It is also of service in chronic prostatitis toward the end of the malady.



A CASE OF PERFORATION OF THE PALATE IN A NEWLY BORN INFANT WITH HEREDITARY SYPHILIS. Bonnet (*Lyon Médical*, February 9, 1908, page 307), showed the palate of a newly born infant, demonstrating a median perforation. This lesion, while frequent in hereditary syphilis in later life is extremely rare in the first months of infancy. But three cases of this type were previously recorded. The infant in question was one month old and both his father and mother were syphilitic. The child presented a papulo-ulcerous syphilide, coryza and a state of cachexia. He died in spite of mercurial treatment.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M. D., EDITOR.

VOL. IV.

JULY, 1908.

No 7.

Contributed by the Author to the American Journal of Urology.

THE SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT OF SIMPLE, CHRONIC, AND TUBERCULOUS PROSTATITIS*

By CHARLES GREENE CUMSTON, M. D., Boston, Mass.

SIMPLE chronic prostatitis and tuberculous prostatitis develop in about the same conditions. Both affections belong to young or middle-aged people and quite exceptional before puberty and very rare in elderly subjects it reaches its maximum frequency between twenty and forty years of age, at the epoch of sexual activity, and this in spite of the influence recently supposed to exist of prostatic hypertrophy on the development of prostatitis.

However, several years ago I operated on a man 80 odd years of age at the Maine General Hospital in Portland, who had suffered from all the symptoms of an ordinary hypertrophy of the prostate, but which, when the gland was exposed through a perineal incision, proved to be an enormously enlarged prostate due to tuberculosis. Upon section the gland was riddled with tubercles and so soft that it could only be removed piecemeal with the finger.

In 26 cases observed by Socin 13 patients were 30 years of age, while out of 60 cases, Simmonds found the disease more frequent between the ages of 20 and 50 years; 1 of his patients was 18 months old and another 7 years old; 15 were in the thirties, 15 in the forties, 16 in the fifties, 6 in the sixties, 7 in the seventies, and 1 in the eighties.

Gonorrhea is the most usual etiological factor of prosta-

* Read at the annual meeting of the American Urological Association, Chicago, June, 1908.

titis and, although we all know of undoubted cases of chronic prostatitis in subjects who have never had gonorrhea and likewise tuberculous lesions of this gland in subjects who have always had a clean urethra, it nevertheless remains a fact that gonorrheal urethritis is often complicated with a prostatitis, as many statistics go to show. Mortagnon found prostatitis in 70% of cases of urethritis, Pozzoli in 80%, Segond in 40%, while Goldberg found it in from one-third to one-half of his cases. The infection of the gland by tuberculosis takes place, probably, in a large majority of cases by way of the blood or the lymphatics. Primary infection coming directly by way of the urethra has been believed possible by Verneuil, Cohnheim and Fernet and these writers admit that coitus with a woman having a genital tuberculosis may infect the anterior urethra and that, from here, the bacilli reach the prostate. In a recent case recorded by Guépin he incriminates buccal coitus. Von Frisch has incriminated soiled catheters and the wearing of clothes infected with tuberculous expectoration. Certain recorded facts would seem to demonstrate that there is a possibility of such infection, but they must be very rare indeed.

Although chronic prostatitis arising from rheumatism or arthritis has been upheld, I am of the opinion that heredity plays a very important part in the development of tuberculosis of the prostate and, out of 35 cases observed by Desnos, 16 gave an hereditary tubercular history. In the few cases that have come under my observation, I found that this was also the case. Certain authors have believed that chronic prostatitis and the tuberculous form could be brought on by excessive coitus, masturbation, stricture, riding horse back, or the bicycle, but these, I believe, are simply accessory causes merely producing prostatic congestion.

I now come to the symptomatology, and will first take up that of chronic prostatitis. As is well known this organ is composed of a glandular and conjunctive tissue, and muscle fibres, so that the simplest and most rational classification is that of catarrhal parenchymatous prostatitis and interstitial prostatitis.

In the parenchymatous type, we have as functional symptoms the disturbances in sensation, usually composed of an ill-defined fullness in the perineal region, while, occasionally, there is an indefinitely localized pain which becomes increased when the patient has been in a sitting posture for a long time, and, like the pain of calculus, riding in a carriage and walking produces it. It sometimes extends to the sacral region and the patients complain of a burning sensation.

The genital disturbances are very variable and, although without doubt they truly exist, they are frequently exaggerated by the patient. Sexual desire is often quite pronounced in the beginning of the affection, but diminishes and may finally disappear. Erection becomes incomplete, but it is rarely absent. Ejaculation occurs quickly and is sometimes painful and not infrequently the patients complain of sharp pain after the act. As to hemospermia, Guyon believes that it is due to an inflammation of the vesicles, but, of course, this does not exclude a prostatitis and Keersmacker has met with it independently of any lesion of the seminal vesicles.

Nervous disturbances appear in the form of a loss of appetite, pain in the spine, loss of memory or a more or less marked depression of the intellect.

The disturbances of micturition consist of tenesmus and frequency. The repetition of the act may be marked in some cases during the day when the patients are moving about, or, on the other hand, during the night, when the prostate becomes congested from the horizontal position. In some cases the desire to urinate increases at certain definite times in the day, usually towards the evening or the first thing in the morning. In others, after micturition a persistent contraction of the sphincter gives rise to a very disagreeable sensation in the perineum.

The urine washes down white shreds, which are generally elongated or somewhat rolled up, these being met with during the first part of micturition and also in the last drops expelled. Clark has mentioned the presence of casts similar to those coming from the kidney, but taking on the shape of bottles or pears. Contrary to the assertion made by Ultzmann, albumin is not present. The urethral discharge affects the

patient mentally. Defecation will bring a thick white or yellowish white liquid to the meatus, having a spermatic odor and an alkaline reaction. The passage of the fecal mass acts like massage by direct pressure on the prostate, while contraction of the prostatic sphincter acts in the same way by expressing the contents of the gland. This liquid, which may also appear intermittently and spontaneously, in the form of small aborted ejaculation, causes staining of the linen, the spots being quite large with irregular borders. Microscopically, one finds numerous cylindrical cells, often united in masses, presenting round cells at their base, and sometimes even complete casts of the excretory ducts, numerous leucocyte and Boettcher's crystals.

Catheterism shows general sensitiveness in the prostatic region and the olive of the explorer will sometimes bring back mucopus, which, in other cases, only makes its appearance after the instrument is withdrawn. A slight retention may also be observed. With the endoscope the verumontanum will be found enlarged, very red and hyperemic. The orifices of the ejaculating canals project slightly, while a more or less marked redness is seen throughout the entire mucosa, the latter often being swollen in certain points. Rectal examination, although disagreeable to the patient, does not produce any severe pain, and, when the prostate is massaged, one may often express a certain amount of liquid which will make its exit at the meatus.

The products of the physiologic secretion are increased in amount and are mixed with catarrhal or purulent pathological elements. The lumen of the excretory canals is diminished or obliterated on account of the inflammatory process in the walls. The secretions stagnate and from this results an increase in the size of the prostate, either in one or both lobes. The organ becomes more and more distended, and, when examined per rectum, it is found rather soft, and to the feel is very much like a rubber ball. Its surface is unequal and ill-defined lumps may be felt over its surface. The vesicles are sometimes indurated.

Referring now to the interstitial type of prostatitis, I would say that the functional symptoms differ very little

from those encountered in the parenchymatous form, but they are very much less marked. The patient will only complain of an indefinite pain and sensation of weight in the perineum. There is only a slight amount of discharge, just enough to stick the lips of the meatus together. The urine contains white shreds, but these are not so long and are fewer in number than in catarrhal prostatitis.

In this form of prostatic inflammation the connective tissue elements are those involved; the infiltration occurs around the glands, becomes organized and transforms into a very dense tissue which does not permit of dilatation. Consequently, per rectum, one finds the gland hard to the feel, rather painful on pressure and irregularly increased in size so that it appears asymmetrical. Its surface is covered with small, rounded lumps whose contour is poorly limited. These bosses are to be found especially on the periphery and external borders of the gland. They are placed so to say in straight lines so that they give the gland rather a square shape and it appears as if surrounded by a frame, this being all the more accentuated the greater the central depression.

Tuberculous prostatitis takes on many forms, but I believe that one may divide it into two types, according to the predominance of the lesions in the urethral mucosa, or in the glandular parenchyma.

The functional symptoms of the mucous membrane type are those of a deep urethritis. In the beginning they are not marked, but increase as time goes on, although their severity is in no way in relation to the minute lesions that exist. Disturbances of the micturition represent the first act of the drama. The patient has frequent, painful and imperious desire to urinate, this occasionally ending in a pseudo-incontinence. These symptoms I believe indicate an extension of the process to the bladder, but this is not always a certain indication, because they are encountered in cases where the bladder is perfectly free of disease.

Evacuation of the bladder is slow, the stream of urine is delayed, the patients feel as if they had an incomplete micturition and they suffer from tenesmus. Not infrequently

there is partial retention and later on in the process, when the infiltration has involved the vesical sphincter this muscle becomes paretic and the urine escapes drop by drop. Consequently, a true incontinence develops.

Hematuria is met with in all the stages and usually appears early in the process and can be rightly compared to the premonitory hemoptysis of pulmonary phthisis. In this case it occurs without any ulcerative process being present and is merely due to the hyperemia. The blood comes away, like the pus, with the first drops of urine voided, but it is more usually met with at the end of micturition. The urethral discharge is very similar to that met with in gonorrhea. Without any inflammatory phenomena, the mucosa of the prostatic urethra is alone involved and gives rise to the discharge and we have here what Ricord used to call "tuberculous blennorrhea." Microscopically, the bacillus of tuberculosis may be found, and not infrequently during the very early stages of the affection.

Catheterism, beside being usually difficult on account of the urethral spasm, is occasionally extremely painful and throws little light on the condition of affairs. An endoscopic examination is of little use and I believe should be proscribed. Rectal palpation gives little information, especially in the beginning of the disease. The prostate will probably not be found enlarged, while its surface is smooth and it is normal in consistency. However, massage of the gland will express prostatic secretions which, collected at the meatus, will be found composed of pus, in which, as I have already pointed out, the bacillus of tuberculosis may be often found. In more advanced cases the lesions are no longer limited to the urethra and tuberculous foci develop more deeply and finally may be detected by the finger in the rectum.

The functional symptoms of parenchymatous tuberculous prostatitis may be absolutely wanting, but, when the disease develops in the peripheral layers of the gland, thus being superficial and near the rectum, the symptoms are represented by some weight in the perineum and a disagreeable sensation during defecation. The pain increases in the sitting posture and may also be produced by walking or the jolting of a

carriage; they are quite independent of micturition, the disturbances of which are only slightly marked in the beginning of the process.

A purulent deposit, which has accumulated in the prostatic urethra when suppuration is sufficiently marked, is washed down with the first drops of urine, while the urine in the middle of micturition is always clear. The presence of pus at the end of micturition is a symptom of cystitis, but when the glands are gorged with pus, the contraction of the periprostatic muscles may cause it to appear at the end of micturition.

The discharge in the parenchymatous form is purulent and occurs during defecation or slight massage of the prostate. Chronic constipation is frequent in tuberculous prostatitis.

When the urethral discharge is the result of small tuberculous abscesses which have opened into the urethra, it occurs during the interval of micturition, while, in the more advanced stages of the disease, the suppuration is almost continuous. I would point out that the extent of the focus of disease must not be judged by the quantity of discharge, because certain old cavities which have become organized give rise to little secretion, while a young focus undergoing disorganization, will suppurate abundantly.

Rectal examination will throw much light on the diagnosis. The prostate will be very sensitive and sharp pain on pressure is an early symptom and very useful from a diagnostic point of view. The gland will be found increased in size, but rarely is this increase uniform, and usually one of the lobes is larger than the other. More or less distinct bosses can be detected over its surface and, in those instances where the tubercle is very superficial, the prostate feels as if studded with shot. The tuberculous lesion has a tendency to become isolated and, as long as it does not give rise to suppuration, the finger can usually limit its contours.

The tumefaction of the prostate rarely reaches any marked degree, but, when, as in some cases, it is double its size, it usually contains one or several purulent foci. Fluctuation is rarely met with, for the simple reason that the walls of the abscess undergo an ulcerative process early in the disease, so that a cavity with irregular walls is formed. The seminal

vesicles are involved at the same time, or before the prostate is diseased. Sensitiveness and induration indicate their participation in the process.

From what has been said of the various manifestations of chronic prostatitides and tuberculous prostatitides, we should endeavor to ascertain what differential value may be attributed to them, which of these symptoms will allow one to make a diagnosis, and when they are wanting, what little symptoms will aid us in suspecting the transformation of a simple chronic inflammatory process into a confirmed tuberculous one. It is quite evident that the genital or sensory disturbances throw little light on the matter and besides that their intensity varies according to whether one is dealing with the parenchymatous or interstitial type, with the mucous or parenchymatous tuberculous forms, they are merely a feeling of weight in the perineum, and a disagreeable sensation during defecation, this being met with in the interstitial form and the parenchymatous type of tuberculous prostatitis. And what is still more, the distinct lesions felt per rectum do not give rise to any of these symptoms and, on the other hand, the latter may exist without any morbid process being present.

The disturbances in micturition, although giving no precise indications, occasionally allow one to suspect the condition of affairs. Absent or only slightly marked in chronic prostatitis—unless there is a cystitis, in which it is relatively easy to distinguish the vesical phenomena—they, on the contrary, indicate the commencement of the phymatosis. The desire to pass water becomes both imperious and frequent, quite independently of any extension of the process to the bladder and of any neuropathic influence. Incomplete retention, although sometimes observed in chronic prostatitis, is common and occurs frequently very early in tuberculous prostatitis.

The urethral discharge offers little diagnostic certitude. Present as only a slight discharge in the interstitial type, it is completely wanting when the specific inflammation remains perigranular and this condition may remain as such for a long time. But when it exists, its character being distinctly

purulent, its emission never spontaneous, the necessity of pressure either with the finger or feces in order to produce it, indicate that it is probably of a tuberculous nature. Spontaneous hematuria, occurring both during the day or night, uninfluenced by movement and not stopping when the patient rests, suddenly ceasing, represented by a few drops of blood at the commencement of urination, but more frequently at the end of the act, is in favor of a tuberculous process in the prostate, particularly in the mucous type.

Catheterism indicates nothing conclusive, since, in both cases, it causes a severe pain in the prostatic region. I believe that little value can be given to an endoscopic examination in the cases we are considering.

Rectal examination is more useful and the results more positive, and, in many cases, it is the only diagnostic source upon which we can base our conclusions. It should always be performed with gentleness, because, when the finger suddenly passes through the anal sphincter, it causes pain to the patient, which might be the cause of very regrettable mistakes.

Chronic prostatitis and tuberculous prostatitis finally end in producing an asymmetry of the gland since the increase in volume is usually met with in only one of the lobes. However, in the simple chronic type, the gland has a more uniform and softer consistency, while, in the interstitial type, its surface is regular, the bosses are larger, less isolated and sunk in the parenchyma of the gland so that a diagnosis can be made. Involvement of the seminal vesicles is of great importance and, when they are very sensitive and present irregularities over their surface, the diagnosis of tuberculosis may be made with a considerable degree of certainty. In chronic prostatitis they occasionally increase in size, but their surface is smooth.

Bacteriological examination is of course very important. Microscopical examination of the liquid expressed by massage, and which should be collected after irrigation of the anterior urethra has been carefully done, will usually reveal the presence of the specific bacillus. This, however, is not always the case, because it is more particularly met with in

the early stage of the mucous form of tuberculous prostatitis. Culture and inoculation may sometimes remain sterile in results and nevertheless the evolution of the prostatitis is rapid and distinctly tuberculous. Such facts prove that when the bacteriologic result is positive, the diagnosis is evident, but that when it is negative, the tuberculous nature of the lesion cannot be eliminated and one should still cling to the clinical phenomena in the diagnosis. If at an advanced period, when the lesions involve the bladder, seminal vesicles, the spermatic cord, epididymis, without speaking of the possible localization in other organs, the diagnosis of prostatic tuberculosis may not be made and at this period no hope of a cure can be entertained, because it is too late. On the contrary, in the period where one finds few of the classical symptoms, it would be an easier matter to deal with the affection because surgical interference might result in a cure. It is for this reason that I particularly emphasize the necessity of an early diagnosis and, in order to facilitate this, I would refer to two little symptoms which are observed in tuberculosis of the prostate. The first is the appearance of light pellicles, floating on the surface of the urine, an indication of an extremely mild type of desquamation. The other is atrophy of the testicle, without any induration or nodules in the epididymis. In calling attention to these two symptoms, I do not wish to convey the idea that they are to be always found, because this is not the case; but, when they do exist, they are certainly of great diagnostic value.

Simple chronic prostatitis and tuberculous prostatitis are very similar in their development. This is essentially irregular, occurring in congestive and inflammatory attacks, which result in a recrudescence of the symptoms. Both forms are very tenacious, because, even in the simpler varieties, the most varied treatment will have no effect while in the tubercular variety its development is slow and silent when the tubercles develop excentrically; on the contrary rapid and with marked symptoms when the prostatic mucosa is involved.

The prognosis of the various forms of prostatitis differs.

In chronic prostatitis, it is never serious, because the lesions met with finally end by disappearing, while in tuberculous of necessity be absolutely bad, because, and I repeat this prostatitis, it should be most guarded, although it need not again, regression of the specific products is possible, especially if, on account of an early diagnosis, proper therapeutic measures have been instituted and have modified the developing lesions. I have seen a cure in one or two cases, at least an apparent cure, because the patients have remained well for several years without any symptoms which would cause one to believe that their former affection had ceased to exist.

On the other hand, the prognosis will vary greatly according to the general condition of the patient, and whether or not he has other tubercular foci in the lungs or elsewhere. When these do exist, the outlook, of course, is not favorable. The more or less rapid evolution of the disease and its tendency to invade the upper urinary tract, must also be considered. The participation of the testicle, the vas deferens, the seminal vesicles and periprostatic tissue, darken the prognosis quite as much as when the bladder itself is involved.

A complete treatment should be prophylactic, etiologic, symptomatic or local. Prophylaxis of tuberculous prostatitis certainly exists to a certain extent, inasmuch as subjects predisposed to tubercular lesions should be informed of the danger of gonorrheal infection, or when they are subjects of old chronic urethritis, this lesion should be carefully treated until absolutely cured. These subjects should be told to eat well, to avoid all excesses and to exercise sufficiently without becoming tired. Horseback riding I believe to be pernicious. Douches, dry friction, sea baths and a life in the open, particularly in mountainous countries are to be advised. General treatment is also of great importance here as in tuberculosis of any other organ and, although I do not profess to be an expert prescriber, I shall take the liberty of giving a few formulae which have rendered me good service.

In the first place, and foremost of all, stands cod-liver oil, and the phosphates and the glycerophosphates seem to me to have their indication as general tonics. The two following prescriptions will be found useful:

Sodium phosphate	6.0
Potassium phosphate	3.0
Vini hispani	200.0
Syr. cort. aurant.	50.0
M. D. S. A liquer glass after each meal.	
Calcium glycono-phosphate	0.30
Magnesium glycono-phosphate	0.10
Ferrum glycono-phosphate	0.05
Pepsin aseptic	0.15
Pancreatin	0.05

In chart, No. 1.

S. One powder after breakfast and dinner.

Fowler's solution, and in fact, arsenic in all forms, may be employed. Sodium cacodylate at the dose of five centigrams a day has, I believe, been successfully used in some cases. I have given arsenic as follows:

Sodium arseniate	0.05
Vini cinchonae	50.0
Glycerine	50.0
Syr. cort. aurant. q. s. ad.....	300.0
M. D. S. A dessertspoonful with each meal.	

Tannin, iodoform, eucalytol, gaiacol and creosote can be given in the form of pills, cachets, suppositories, or rectal injection. The following combination has certain therapeutic virtues.

Terpin, hydrate	0.05
Gaiacol	0.04
Sodium benzoate	0.03
Ext. cinchonae	0.02
Excipient q. s. f. pil. No. 1	
S. 5 to 10 pills a day.	
Creasote	10.0
Sodium Phosphate	40.0
D. in. cachet No XL	
S. 1 during each meal	

Medication applied topically per rectum, in the form of very hot irrigation, and also urethral irrigation, acts like a douche, but the indication for intraurethral irrigation is not very precise. Generally speaking, it should not be employed as long as there is any retention or a prostatic urethritis.

It necessitates manoeuvres which may cause ulceration of the thinned mucosa covered with tuberculous lesions. When a prostatic urethritis exists, and especially when very painful, good results may be obtained by urethro-vesical irrigations without a catheter. The patient should first empty his bladder and then the meatus and glans are carefully cleansed. Then enough liquid to fill the bladder is injected and the patient should then expel it by micturition. A syringe should never be used. The solutions employed may be a 5% boracic acid or lactic acid; formalin at 2:1000, or a weak solution of tannin, or potassium permanganate. However, the treatment of choice is the use of concentrated solutions in the form of instillation given every second day. In my opinion silver nitrate is extremely dangerous in these cases, producing a discharge, hematuria and necrosis of the mucosa. Protargol, which has been pruned in chronic prostatitis, is only of value in the tuberculous form when there is a mixed infection, in which case it diminishes the pain, the shreds decrease in number, but the specific lesion is unfavorably influenced by this agent. The action of iodoform is doubtful, although it has been highly lauded. Lactic acid, has been used, but I cannot speak of it from personal observation. The following formula has been given by Witzach:

Cocaine lactate	2.0
Acid. lactic.	10.0
Sterilized water	10.0

Ichthyol in a 2 to 5 per cent. solution has been greatly praised by Noguès.

The virtues of picric acid are interesting to know; not only is this agent painless, but it is also endowed with undoubted analgesic properties. As it is no way caustic it has over sublimate the great advantage of not producing irritation. It is an excellent antiseptic and possesses a keratoplastic power equal to that of pyrogallic acid. The only inconvenience in using this drug is the stain produced on the fingers or the patient's linen, but this can be removed by washing. To remove it from the skin a saturated solution of lithine carbonate, or water, to which potash or ammonia has been added, is all that is required.

As to the technique it is as follows: After the bladder has been emptied, from one to three cc. of a two to three per cent. solution is instilled in the membranous urethra. This instillation causes practically no pain if one is careful not to allow solution to escape in the anterior urethra. The benefit is especially shown by an improvement in the secretions which diminish, as well as the painful symptoms. The frequency of micturition disappears and hematuria is not a contra-indication to this treatment because it also usually ceases along with the other symptoms, and I am unaware that the drug has ever increased or started up the symptoms already present. An improvement in the patient is occasionally observed after a few instillations, but, generally, a number of weeks are necessary before one is able to judge of the results.

It is evident that some patients support intraurethral treatment badly, and the effect of the solution on the mucosa varies very greatly from one case to another, so that the surgeon is frequently obliged to change the strength of the solution, also the medicament.

Massage of the prostate is the best treatment in simple chronic prostatitis, because it expels the secretions which have accumulated in the glands, while, on the other hand, it excites the activity of the periprostatic venous plexus and hastens absorption, but, in the tuberculous variety, the results obtained have not been so favorable. I do not think it can be absolutely prescribed in these cases, but, if resorted to, it must be done with great delicacy.

Surgical treatment has, unfortunately, few indications in the mixed prostatitides; however, when the diagnosis has been made in the very early stages of the disease, or when the tubercular lesions involve only the prostate and seminal vesicles, if the bladder is not involved and the patient's general health is good, prostatectomy may be proper and is the only means of preventing the process from extending. It would appear to me that, in this case, the perineal route should be the one of choice.

RECOVERY IN A CASE OF MULTIPLE FRACTURES OF THE PELVIS AND FEMUR WITH EXTENSIVE TRAUMA OF ONE KIDNEY AND IMPACTION OF PUBIC ARCH IN THE BLADDER.

By J. F. MENESTRINA, St. Louis, Mo.

IN the course of a lecture on surgery by our late and esteemed Dr. Elisha Gregory, I recall hearing him state that in practice we would meet occasionally with patients endowed with such a vitality, that no matter what was done to them we could not kill them. This statement was never better exemplified than in the following case:

J. K., a lad aged 11, was admitted to the Deaconess Hospital, on Dec. 30th, 1907, a few hours after being injured. On his arrival, I found him suffering from profound shock. He was caught between a wall and a moving car, and his body was crushed and rolled between the two. He complained of intense pain in the lower abdomen which was greatly distended, tympanitic in the centre, dull on both sides, conclusively proving fluid in the peritoneal cavity. He was catheterized, and bloody urine was drawn. Suspecting hemorrhage and internal injuries, he was speedily anesthetized, and a small exploratory incision was made in the median line which revealed blood escaping as soon as peritoneal cavity was reached. The incision was extended to the pubis, and I noticed great serous infiltration of the parietal peritoneum, especially in the pelvic viscera. Pelvis was filled with blood. Intestines were carefully gone over twice, but no injury was found. Hand was passed up to the liver, stomach and spleen, and these organs minutely palpated. Omentum and mesentery did not escape examination and were found normal.

The bladder, ureters and kidneys were next palpated. The bladder was found enormously distended almost to the point of rupture by a hemmatoma; no communication, how-

ever, existed with the peritoneal cavity. The right ureter and kidney region were next inspected, and nothing abnormal was found. On the left side, a large tumefaction was noted extending to the kidney, denoting a hematoma beneath the peritoneum. The pelvis was next inspected and blood sponged out, and then the source of the hemorrhage was located, when a laceration in the parietal peritoneum was found to the left of the rectal peritoneal covering, apparently leading down to the sacro-iliac syncondrosis. A blood clot was seen plugging this laceration, and as hemorrhage seemed arrested it was thought best not disturb it.

No other evidence of injury was seen or felt, and peritoneal cavity was closed with drainage.

He reacted promptly from the shock, drain was removed next day, and in ten days' time wound was healed by first intention. Blood clots in the bladder were dissolved during this interval by Nitrox solution followed by a hot decinormal salt solution. On the tenth day, after his admission, he developed a sharp chill, lasting one hour; temperature rose to 105 Fahr., pulse 140. Urine showed considerable pus. He complained of severe pain in the left kidney region. This chill was followed by another in six hours, and a third within the day, leaving him in profuse perspiration and much exhaustion. Suspecting the source of the trouble to be in the left kidney, I requested Dr. Bransford Lewis of this city to make a cystoscopic examination. This was done the following day, under chloroform anaesthesia and to our agreeable surprise, this child's urethra after slitting the external meatus, admitted the universal cystoscope. Mucosa of the bladder was found congested, especially near left ureter. Right renal catheterization showed normal secretion of clear urine, left catheter, however, showed urine diminished in quantity, turbid, flocculi of pus passing down along side of the catheter. The secretions were collected in separate bottles and examined microscopically and found to contain streptococci, staphylococci, bacilli coli communis, blood casts, and corpuscles. Right side found normal. It was best thought to explore the left kidney, which was done the following morning. The usual nephrotomy incision was

made and kidney was lifted out after some difficulty. It was found very large, congested and distended at the pelvis. A small opening was made in its dorsal aspect. It bled copiously at first, about two teaspoonful of pus was found within its pelvis. A gauze drain was placed within and hemorrhage was controlled by packing gauze at each side of the kidney, exerting general compression. Kidney was anchored as in nephropexy, wound partly closed by layer suture; gauze packed on each side of the kidney was removed next morning, bleeding having ceased; gauze drain within the kidney was removed on the tenth day. A fistulous opening persisted for fifteen days, ultimately closing.

It is interesting to note at this stage that while moving the little fellow from the operating room, following the kidney operation, I was shocked to feel a crepitus while my hand was placed under his pelvis. Investigating at once, I found crepitus at the left ramus of pubis, at the acetabulum and on rotating femur. Left sacro-iliac synchondrosis seemed separated, in fact, the entire os innominatum on the left side seemed involved in multiple fracture. Measurement of the left femur showed two inches shortening, and a tumefaction at the trochanter; limb abducted. I was chagrined to realize that I neglected to inspect at first the pelvis, for probable fractures and I can now very readily see why I did not discover crepitus, when we consider that there was an extreme distention and infiltration of soft structures lining the cavity of the pelvis, holding fragments far apart. I waited a few days for the little fellow's condition to improve and had Dr. J. Carmon of this city take three plates of the pelvis. The following condition can be plainly seen: A complete distortion of outline of the pelvic basin is noticed. Ilium, ischium and pubis are fractured and are involved in a common lesion of the acetabulum. Of the acetabular fossa nothing exists but a splintered mass of fragments; the same is true of the head of the femur with telescoping of the neck. Nelaton's and Bryant's test were used to determine shortening of the femur and a difference of two inches from the opposite side was found. The separation was most marked at the left pubis. Digital examination of the

rectum showed a marked gap at this point, but the real extent of this injury was not revealed till some days later when pus was noted to increase in quantity in the daily bladder irrigation. He was now showing sepsis at a marked degree. Another cystoscopic examination was imperative, and what had escaped us in the previous examination was now plainly seen by turning the beak of the cystoscope, when a perforation of the anterior wall of the bladder was found emitting pus. Suprapubic cystotomy was then and there made, and a sharp fragment of the bone was found penetrating the anterior portion of bladder wall, subperitoneally. This fragment could not be located at the first exploratory examination owing to the fact that it laid subperitoneally, but it escaped us also at the second examination when the cystoscope was used, since we thought to have found the only source of the pus in the left kidney.

The protuding sharp bone proved to be the ramus of the pubis and it could not be removed because it had a large base, so it was thought best to use the ronger and after some difficulty I succeeded in removing the protuding impaction. The perineum was distended by urinary infiltration and a perineal incision was made in the median line communicating with the opening in the bladder and a drain inserted. Another was placed in the suprapubic opening and before closing, both ureters were examined and catheterized and to our great satisfaction we collected urine normal in quantity and quality from both ureters, plainly showing that the timely operation on the left kidney had reclaimed its usefulness and restored normal function.

Pus ceased at once. Perineal drain was removed two weeks later. The patient now rapidly improved; the left limb was placed in a Dupuy extension splint and extension gradually increased. A callus at the pubic fracture encroached to such an extent on the urethra that it obstructed passage completely. External urethrotomy was necessary to restore its caliber. Now he is able to go about with the aid of crutches. Extension was kept up by weighing left shoe with lead. He will be left with a false hip joint, some shortening will necessarily be present, and as he is

only 11 years of age, it will be interesting to note the future progress of growth and usefulness of the affected limb. Massage, electro-therapeutics, gymnastics, etc., will be placed at his disposal to attain this object.

When similar cases are met with, an X-Ray examination should be made as early as possible to avoid errors.

When exploratory incision in the linea alba shows an infiltrated condition of structures covering the pelvic peritoneum, even if no crepitus be present, suspect fractures of the innominata, and if it is possible mould back to their proper positions displaced fragments. If a distension of the bladder exists by a hematoma, and no visible communication is found from the peritoneal site, explore by cystoscopy.

Do not repeat our mistake in omitting examination of the anterior portion of the bladder. Rectal examination may also reveal protruding fragments.

Sounding may assist locating existing conditions but it must be carefully done lest a fresh hemorrhage be started.

Do not try to do too much at once, for the shock may kill your patient. If renal catheterisation after such an injury shows pus later, explore affected kidney without hesitation by a nephrotomy incision. Reclaiming the functional activity of the kidney will certainly be a great reward for your effort. Hemorrhages during and after exploration are best controlled by packing gauze on either side of the kidney.

Do not omit the use of the cystoscope in such case, as it is indispensable. One with sufficiently small caliber must be used, such as the Universal, which can be used in a child's urethra by enlarging external meatus, aiding its introduction by chloroform anesthesia.

Urinary antiseptics and fluids should be used freely.

Considering the great shock of the original injury, the numerous anesthetics and serious surgical operations, this child has shown remarkable vitality, and the case is interesting not alone from the fact that it presented many complications, but also as exemplifying how much may happen to a human being without killing him.

DIFFERENTIAL DIAGNOSIS BETWEEN COMPLETE AND INCOMPLETE URETERO-VAGINAL FISTULA.

By ERNST JONAS, M. D., St. Louis, Mo.

THERE is little doubt that, during the last decade there has been a marked increase in the number of ureter-fistulae after operations. The majority of these fistulae have occurred after operations for cancer of the uterus. The reason for this is to be found in the effort to obtain better permanent results from operations for cancer of the uterus, after the investigations of Werheim, Bumm and others had shown that most operations for cancer of the neck of the uterus until that time were more or less of a farce. It was justly insisted that, in all cases of cancer of the uterus, the infected parametrium and lymph glands must be removed with the cancer, just as the axillary fat and lymph glands are excised in all cases of cancer of the breast.

This new method permitted radical operation on cases which had heretofore been considered inoperable. It demanded removal of the infected parametrium and lymph glands in all cases, while until then, carcinomatous infiltration of the parametrium and palpable lymph glands were considered beyond aid. It is only natural that in the attempt to dissect the ureter out of the infiltrated parametrium, the nutrition of the ureter should suffer and a ureter-fistula perhaps follow. The lesson had to be learned that, in order to avoid these very disagreeable fistulae, it is absolutely essential that the ureter be handled with utmost care during the whole operation. No pulling, no pressing with instruments is permissible. The best way to avoid injuring the ureter is to keep it in view at all stages of the operation. It is one thing, however, to keep the ureter plainly in sight, and another to lift it out of its bed for greater distances.

If this lifting is not avoided, then necrosis of the ureter and a ureterovaginal fistula results, or even urinary infiltration and peritonitis. It is hardly necessary to mention that infections or drains introduced extra-peritoneally into the neighborhood of the ureter are also favorable to the development of a ureterovaginal fistula.

Less frequently ureterovaginal fistulae follow operations for fibroids of the uterus. There is undoubtedly a justified tendency among surgeons to prefer panhysterectomy for fibroids of the uterus to supravaginal amputation. (Conservatism in large fibroid operations is not often indicated, because of the usual multiplicity of the fibroids; it is almost inevitable that small nuclei remain, which frequently grow then with rather increased activity. However, the wish of the patient not to be deprived of the menstrual habitus and of the possibility of bearing children, might induce the operator to save the uterus. But pregnancy after removal of fibroids of the size of a child's head, or larger, is rare, and the danger of pregnancy and confinement in a uterus badly scarred in several places is to be considered.)

The development of a ureterovaginal fistula after panhysterectomy for fibroid of the uterus is, as before stated, infrequent. There are cases, however, in which such a condition might occur without any apparent reason. The case in which I made my observations of importance for the differential diagnosis of complete and incomplete ureteral vaginal fistula developed the fistula after panhysterectomy performed for fibroid of the uterus.

Mrs. T——, extremely exhausted and highly anemic, presented herself with a firm round tumor, reaching up to the middle between the umbilicus and the xiphoid process, in size equal to the uterus in the eighth month of pregnancy. The tumor could be felt dipping down into the pelvis, particularly so on the left side. The body of the uterus could not be outlined, the neck having entirely disappeared. There was a very low hemoglobin percentage (40 per cent.), otherwise the examination of the organs proved satisfactory.

I performed panhysterectomy with removal of tubes and ovaries in the typical way, keeping very close to the tumor

and uterus. In this way, as is well known, injury to the bladder, ureter and rectum is surely and simply avoided. In this particular, myoma operations differ from carcinoma operations, in which, on the contrary, we must keep far away from the uterus and must sacrifice a good part of the vagina. The operation was simple, and even on the left side of the pelvis, where the tumor dipped far down between rectum and vagina, it was not necessary to raise the ureter from its bed and to injure the ureterovaginal vascular network, the result of which is a frequent cause for necrosis of the ureter. After complete stoppage of the hemorrhage, I introduced a small gauze drain into the vagina, and sewed the peritoneum of the bladder to the peritoneum of the Douglas pouch, and then sewed the rest of the peritoneum in the usual linear manner. As a rule, I first sew the peritoneum of the bladder to the anterior vaginal wall, and the peritoneum of the Douglas pouch to the posterior wall of the vagina, and then continue as above. In this case, on account of the highly anemic condition of the patient before the operation, I did not wish to prolong the work even for the very short time required for this additional sewing. I removed the drain on the third day.

Everything went favorably until the tenth day after the operation, when the nurse reported that the patient, who had been able to pass her urine normally, was continually wet, though from time to time urine was passed in the natural way. The quantity of the normally passed urine, which had averaged fifty ounces in twenty-four hours, dropped to twenty-five to thirty ounces. Upon vaginal examination I found a constant dripping of urine from the vagina. I could not, however, discover the location of a fistula. I wish to state here that the discovery of a fistula in the left or right fornix is by no means a proof that the ureter of the same side is injured, since the injured ureter might be pulled entirely to the opposite side by parametrian scar formation. The complete filling of the bladder with permanganate solution showed that there was no incontinence of the bladder. There was no doubt, therefore, that a ureterovaginal fistula existed. In order to find the ureteral orifices in the bladder

more easily, I injected 4 c. cm. of a 4 per cent. solution of indigocarmine (Brückner, Lampe & Co.) into the gluteal region, according to the advice of Völker and Joseph. Cystoscopic examination about twenty minutes after this injection revealed the right ureteral opening very plainly by a greenish-bluish discharge. The left ureteral opening could not at first be discovered, but then I recognized a movement of the ureter similar to the contraction of the ureter in discharging urine. But no fluid come from the opening! This symptom, fittingly called by Viertel "Leergehen" of the ureter, was very evident. Its presence, depending upon contraction of the ureter, proved that the peristaltic movement of the ureter continued to the bladder, and that, therefore, there was no complete interruption of the continuity of the ureter, but only an opening in the wall.

This phenomenon, in cases of evident ureterovaginal fistula after operation, decides with which of the two conditions we have to deal. The differential diagnosis is of importance, since we know that lateral defects of the ureter frequently, even usually, heal of their own accord in about four or six weeks. (The wound of the ureter, after removal of a stone, usually heals spontaneously). Complete severing of the ureter, as is produced by section or ligation, never heals spontaneously. In the case under consideration there was no marked decrease of urine from the vagina for about two weeks after development of the fistula, that is, three and a half weeks from the date of the operation. I explained to the patient the exact nature of her condition, and told her that I trusted the fistula would be a temporary one and would probably close in from two to four weeks. The patient, feeling otherwise well, decided to return home, and two weeks later reported that the quantity of urine coming from the vagina was decidedly less, the amount passing from the bladder increasing. One week later she wrote that no urine escaped from the vagina and that she passed between fifty and sixty ounces of urine.

The differential diagnosis between a complete and incomplete ureterovaginal fistula is, therefore, by no means only of academic value. It is of great practical import,

since it decides for or against operation. In incomplete ureterovaginal fistula it should warn against premature operative interference.

Except in such cases in which there is a certainty of complete interruption of the continuity and in which, therefore, spontaneous healing is impossible—only after nature has had her chance of at least six weeks, should we interfere and perform a secondary operation, reimplantation of the ureter into the bladder, ureteral anastomosis, or even nephrectomy.

I examined the patient again one year after the operation, and convinced myself that she was absolutely well. Both ureters discharged urine into the bladder; the ureteral catheter entering the left ureter without difficulty. The condition of the pelvis is perfect, not a trace of an exudate being noticeable. I am not in a position to state the exact cause for this ureterovaginal fistula. It did not appear until the tenth day. At the operation, as stated before, I carefully avoided disturbing the ureter in its nourishment. However, a slight mechanical insult to the ureter cannot be excluded. This, in a patient so extremely anemic, may have caused the fistula through secondary necrosis.

To summarize:

1. Leergehen (empty contraction) of the ureter is an important point for differential diagnosis between a lateral opening and complete interruption of the continuity of the ureter in ureterovaginal fistula.
2. Operative interference in ureterovaginal fistula, where there is only a lateral opening in the ureteral wall, is not advisable until there has been a chance for spontaneous healing.

465 N. Taylor Ave.

SPECIMENS OF FAULTY DESCENT OF THE TESTICLE

By D. E. WHEELER, M. D., Buffalo, N. Y.

CASE I. In the first of these specimens the vas deferens and spermatic vessels on the right side lie in Scarpa's triangle. There is no inguinal canal on the right side and the right spermatic cord leaves the abdomen along with the femoral vessels beneath Poupart's Ligament. The right testicle was too small for identification, but since the spermatic artery only supplies the vas and epididymis secondarily through anastomoses with the cremasteric and artery to the vas, the right testicle presumably lies in the fatty capsule surrounding the right spermatic vessels. The right seminal vesicle is small and undeveloped.

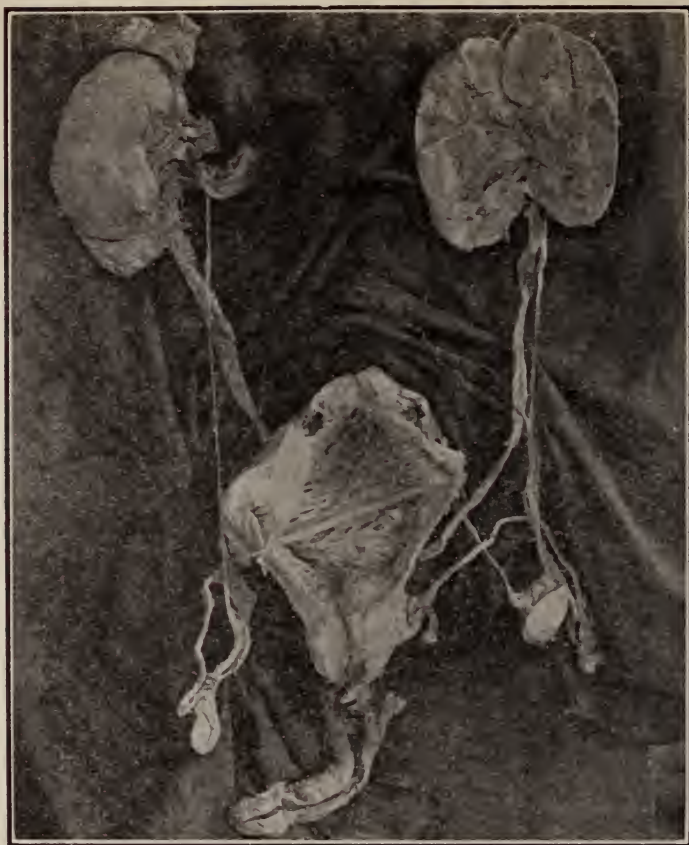
On the right side the deep epigastric and deep circumflex iliac vessels take their origin from the femorals instead of from the external iliacs.

The left side shows no abnormality except a dilatation of the internal abdominal ring, closed by an hypertrophied triangular fascia and a plug of fat such as often lies on the spermatic cord in cases of ectopia testis.

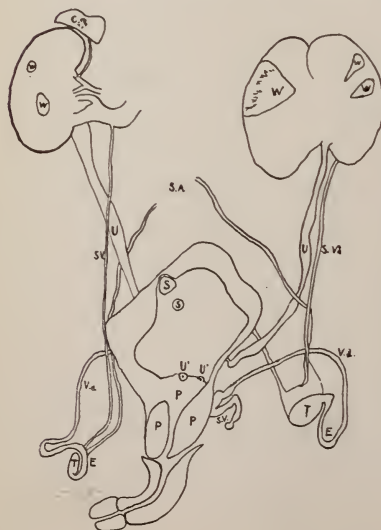
The penis in this case was well developed and the figure virile.

Ectopia in Scarpa's triangle has been frequently reported, but in all, or nearly all, cases where a complete dissection has been made the cord has been found to follow the normal course of those fibres of the gubernaculum testis which are attached in the thigh—that is to say, to leave the abdomen by the inguinal canal and pass beneath the scroto crural fold. It has even been denied that the form of descent illustrated by this case ever occurs.

CASE II. The second specimen is from the ordinary form of double cryptorchid. Both testicles were arrested at the internal abdominal ring, and are puerile in character.



CRYPTORCHID WITH FATAL PROSTATISM.



- T. Testis.
- E. Epididymis.
- V.d. Vas deferens.
- S. V. Seminal Vesicle.
- P. Prostate.
- U. Ureters.
- U¹. Ureteral Opening.
- S. Sacccule in Bladder Wall.
- S. A. Spermatic Arteries.
- S. V. Spermatic Vein.
- W. Wedge-shaped Areas of Pus Infiltration.
- C. Supra-renal Capsule.

The patient was 80 years old and gave a history of never having had any sexual life.

The penis, in this case, is fairly well developed, but the seminal vesicles are small and atrophic. The beard was thick and long, but the figure and mons veneris were of a feminine type. The scrotum was present and had a well developed raphe, but was undistended. Both spermatic veins empty into the venal veins.

The unusual feature in this case is the well-marked prostatic hypertrophy and signs of prostatic obstruction. The bladder is tuberculated and sacculated. The right ureteral opening is near the median line and the left pushed far over to the left side. The ureters are dilated and the kidney stroma shows wedge shaped areas of pus infiltration.

It was from prostatic obstruction and ascending infection that this patient died.

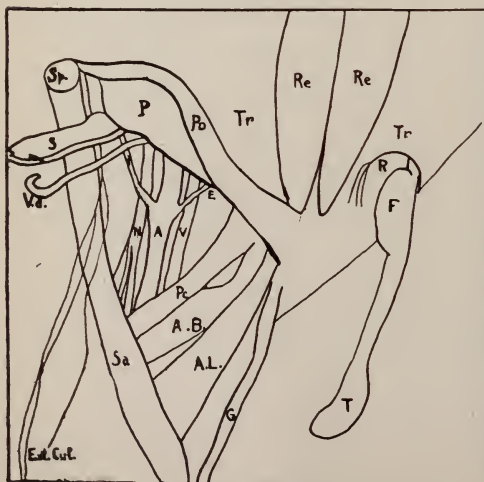
564 Delaware Ave., Buffalo, N. Y.

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DESCENT WITH FEMORAL VESSELS.



- S. Right Spermatic Vessels
- Vd. Right Vas Deferens.
- P. Peritoneum.
- T. Left Testis.
- F. Fat.
- R. Left. Int. Abdominal Ring.
- Po. Right Poupert's Ligament.
- Sp. Ant. Sup. Spine.
- Sa. Sartorius.
- Pc. Pectineus.
- A. B. Abductor Brevis.
- A. L. Abductor Longus.
- G. Gracilis
- Re. Recti.
- N. Anterior Crural Nerve.
- A. Femoral Artery.
- V. Femoral Vein.
- I. Deep Circumflex Iliac Artery.
- E. Deep Epigastric Artery.
- Ext. Cut. External Cutaneous N.
- Tr. Transversalis Muscle.

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THE PROPHYLAXIS OF THE FUNCTIONAL DISTURBANCES OF THE MALE SEXUAL ORGANS. (DIE PROPHYLAXE DER FUNCTIONELLEN STÖRUNGEN DES MÄNNLICHEN GESCHLECHTSAPPARATES.)

By VICTOR G. VECKI, M. D., San Francisco.

IN this pamphlet, published by Seitz & Schauer of Munich as supplement III to the Handbook of Prophylaxis, Rohleder gives a brief, precise and scientific treatise on the subject. The author subdivides the matter into a prophylaxis of masturbation, a prophylaxis of pathologic seminal losses, a prophylaxis of sexual impotence, and a prophylaxis of sterility in men. The author seems to think that the adding of the prophylaxy of masturbation to the subject is an innovation and a happy thought of his own. So early as 1889 when the first German edition of my work on the pathology and treatment of sexual impotence was published, I have said: "The prophylaxis of impotence is closely connected with the prophylaxis of masturbation (onanism), etc., and have devoted several pages to the self-same subject.

Rohleder's teachings in regard to the prevention of an evil so widely spread as masturbation are free from all exaggerations and are a valuable addition to the literature. In a few, maybe unimportant, matters the author, however, follows old doctrinary sayings which must be contradicted always anew. The venerable "phtisicus salax" is very reluctant to disappear. R. thinks that phtisics are especially inclined to masturbatory excesses. This is to be denied. There may be exceptions, but as a rule, phtisics are not much inclined to physical love nor to any other kind of sexual gratification, and this is in keeping with the condition of their physical strength. Such is my personal experience gained by many years of careful watching and examining of numerous phtisical patients. My distinguished colleague, Albert

Abrams, who, if anyone, is competent to speak on the subject, assured me recently that his large experience bears out my opinion.

Very interesting is Rohleder's observation that many diabetics are addicted to masturbation. Considering that diabetics conserve sometimes for years a considerable libido in spite of an early loss of the erectile power, masturbation may be possible, and probably is resorted to quite frequently when copulation cannot be accomplished any more.

I am sure that few physicians in this country will agree with R. when he recommends a whipping to cure smaller children from masturbation. To beat a child for any purpose never has and never will do any good. In exceptional cases, in order to break an open revolt it may be imperative, but even then the desired effect remains problematic.

It seems altogether as if R. were inclined to be pretty stern, and after advising the licking of "smaller" children he does not hesitate to punish a fellow author. And here I am compelled to speak "pro domo." R. evidently thinks it is sufficient to say that my opinion is false, and proofs are not necessary. Of course, we could console ourselves by simply assuming a difference in opinions, but in this case it is impossible because R. is of my opinion, and only makes the mistake of misquoting me.

I never asserted that after *abusus sexualis* the sperma becomes more abundant and the spermatozoids more numerous and energetic. All I ever claimed is that, with persons who have accustomed themselves to frequent intercourse and have the power to do so, the number of spermatozoids increases with the frequency of coition, and that the thusly augmented spermatozoids become well developed, lively and energetic. R. makes the old and time honored mistake to confuse frequent coition with *abusus*.

Unmistakable facts seen under the microscope, and experiments which have never been disproved by anyone cannot be eliminated, and R. ought to make controlling experiments and examinations before he has the right to a personal opinion. I will acknowledge that such experiments are difficult and tedious.

R. overlooks entirely that the case of a fellow-physician he mentions only confirms my findings. That patient, under treatment for frequent nightly emissions, was observing himself closely, and found that the quantity of the ejaculated spermal fluid increased with the frequency of the involuntary losses.

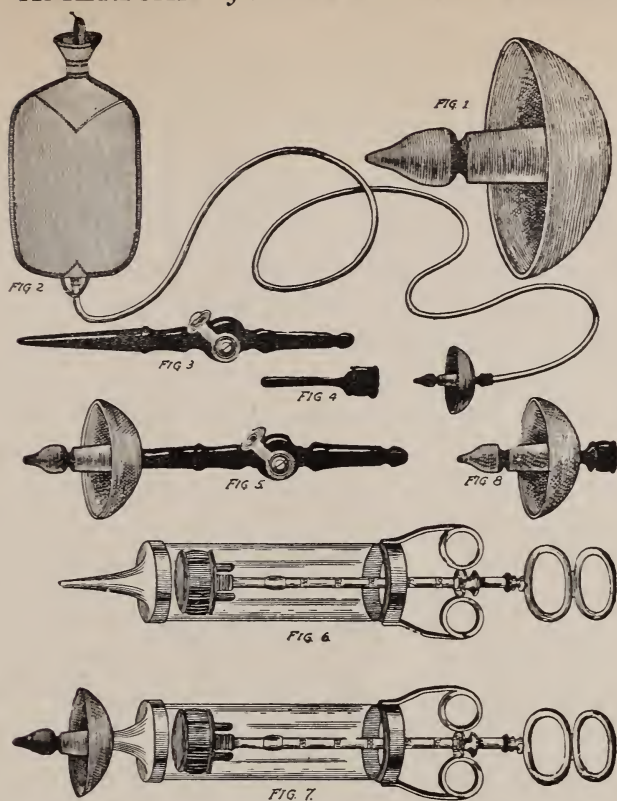
R. does me a further injustice by asserting that I alleged that frequent nocturnal emissions cause necrospemia. It is true that I have seldom found living spermatozooids in sperma from nocturnal emissions, though sometimes examined so early as one hour after the emission; but with frequent nocturnal emissions it must be different, and I quite agree with R. that after frequent pollutions the microscope may show numerous and lively spermatozooids. This would be only in support of an explanatory hypothesis I offered in 1889, viz: "It is probable that the sperm of the vesiculæ seminales, which is poorer in spermatozooids, is evacuated first, and that only after that, by the repetition of the ejaculation, come the contents of the vasa deferentia, and last of all those of the testicles."

R. further claims my assertion that natural *abusus sexualis* never causes spermatorrhœa was "naturally also" disproved, but fails to state by whom, when and where. Personally I have never seen nor heard of a case of spermatorrhœa caused by excessive coition alone.

It is hard to understand why R. keeps on repeating that it is my opinion that masturbation does not cause impotence. I never claimed such a thing.

The few errors stated, which to others may appear even more trifling, do not impair the intrinsic value of Rohleder's work, which is to be recommended to every physician for careful study. It is a worthy successor to that author's book on the Sexual Instinct and Sexual Life.

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3. Berlin, 1901.



WHEELER RUBBER TIP AND SHIELD

Devised by CARL LEWIS WHEELER, M. D., Lexington, Ky.

For Urethral and Intra-vesical Irrigation with the Janet-Frank Syringe.

This little device is made of one piece of soft rubber. Shield $2\frac{1}{2}$ inches in diameter and measuring $2\frac{1}{2}$ inches from point of tip to base of shield. The curve of the convexity of the shield is such that it catches all the reflux and prevents bespattering the operator or patient.

Figs. 6 and 7 show the tip and shield with the Janet-Frank Syringe. Figs. 3 and 5 show the practicability of the tip and shield with the Esmarch cut-off, which can be attached to any kind of irrigating apparatus. Figs. 2, 4 and 8 show the tip and shield as attached to a fountain syringe, thus meeting the long needed want—an Ideal, Inexpensive Auto-Irrigator which we can equip for our patients when it is impossible for them to be seen in the office oftener than once or twice a week.

THE PATHOLOGY AND TREATMENT OF PROSTATIC ABSCESS.

AT a meeting of the New England Urological Society, on May 12, 1908, at Boston, Dr. Samuel Alexander of New York, read a very important paper, as yet unpublished, on the treatment and pathology of prostatic abscesses. The author, well known for his work on prostatic surgery, advocates prostatectomy in all cases of prostatic abscess, a radical treatment, which we believe has certainly its indications, although it is as yet premature to advise it as a routine treatment in these cases. Alexander has, up to the present, removed over 30 prostates for this lesion and his results have been in general good, although we believe that some of the postoperative results and complications would have been no worse had simple perineal incision been resorted to. Another very valuable contribution has been given to this subject by Vogel of Berlin, in January of this year. He deals with prostatic abscess, other than the tuberculous form, and divides the process into two classes, namely, the true and the false. He points out that these divisions are anatomical and not always to be clinically differentiated. The first group includes those suppurative processes which are limited to the prostatic parenchyma, while the second group comprises those cases where the process is limited to the glandular structures and result from an extension of an inflammatory process in the urethra, usually a gonorrheal infection.

A true abscess may result, when the inflammatory lesion extends down into the tubules of the gland and according to him, this frequently follows typhoid fever, phlegmonous angina and other infectious processes, or it may complicate rectal ulcers, or anal fistula. In his paper, Alexander remarked that, in his opinion, many ischio-rectal abscesses, commonly supposed to be due to some rectal lesion are, in reality, the result of an extracapsular extension of a prostatic abscess.

Vogel is of the opinion that oftentimes the prostatic abscess

accompanies prostatism, because the subjects are early obliged to resort to catheter life, the catheterism being necessitated for relief of retention so that the infectious prostatic process may result from the passage of a dirty instrument, thus infecting the prostatic urethra, while, in other instances, false passages are produced and toxic material carried within the prostate.

The diagnosis of prostatic abscess is not always simple, and this point has been particularly insisted upon by Alexander and Vogel. Complicating, as it does other affections, its symptoms are frequently obscured and this is especially so when general symptoms are absent, as is frequently the case. This is particularly true in instances where the purulent collection is located in the midst of a hypertrophied prostatic lobe. Alexander, likewise Vogel, points out that there is often no rise in temperature or chills, and no points of softening can be detected with the exploring finger in the rectum, on account of the considerable amount of sclerotic tissue lying outside of the abscess cavity.

In cases of pseudo-abscess, the gland is rarely increased in size in entirety, but, if carefully palpated, Vogel believes that a localized swelling can generally be found, showing at some point a small area of softening. Alexander pointed out that this was hard to detect and that oftentimes he operated where no point of softening could be found and still at operation a collection of pus was found in the prostate.

In true abscess, palpation makes evident a large, well rounded, and defined mass in the rectum, rendering defecation very difficult and, not infrequently, the passage of the feces will force out a large quantity of pus through the urethra, this making its exit at the meatus. Digital massage of the prostate will also result in the same phenomenon. Vogel states that areas of fluctuation may be found in some cases, and in our experience this is quite true, if the process has been allowed to develop. On account of the venous plexus surrounding the prostate, an infective thrombosis not infrequently arises which results in the extension of the inflammatory process to other perineal and pelvic structures.

In cases of pseudo abscess the prostate should be carefully

massaged and this is followed by the application of disinfectants to the posterior urethra. Vogel believes that, in cases of true abscess, these should be drained in most cases, although, as he points out, rest in bed, cathartics and anti-phlogistic treatment may result in a cure. He only advises prostatectomy in those instances where the abscess develops in a case of prostatic hypertrophy, while Alexander, far more radical, advises enucleation of the prostate in practically all cases of abscess of the gland.

THE PROGNOSIS AND TREATMENT OF INTERMITTENT ALBUMINURIA.

TWO questions come up to be answered by the practitioner when dealing with a case of intermittent albuminuria, viz.—is the affection serious and what should be done? Three elements guide the prognosis; (1) the clinical type of the albuminuria; (2) the symptomatology; and (3) the nature of the albuminuria.

It is known that the types of intermittent albuminuria are various, and orthostatic form is admitted, that is to say, that where the only causative factor is the erect position; cyclical albuminuria of a pre-gouty nature, which enters almost completely in the preceding group; the digestive albuminuria, in relation with some gastric, intestinal or hepatic disturbance; and lastly the residual albuminurias succeeding an infectious nephritis which is in appearance cured.

As to the two first types, namely, the orthostatic and cyclical, the affection is benign, neither infections nor pregnancy increase the danger and very few instances have been observed where these types of albuminuria have developed into a confirmed nephritis. As to the digestive albuminurias, a certain reserve must be maintained. The morbid process is not evident, renal changes may be in play, and sometimes it will be found that the case is one of tuberculous albuminuria.

A residual albuminuria succeeds a nephritis and may remain stationary, or a cure may be obtained in from four to five years. A third mode of evolution may also be met

with, viz.—when a residual albuminuria takes on one of the preceding forms, such as the orthostatic, cyclical or digestive. At any rate, when the intermittence in the albuminuria follows various forms of excitement, the prognosis should be reserved, because in all probability, some renal lesion persists. Albuminuria having marked oscillations, but permanent, should be prudently prognosticated, because it indicates an infectious process still in activity. Certain conditions of the urine will allow one to make certain conclusions as to the prognosis. A non-retractile albuminuria is apt to belong to temporary and curable nephritides. The fact that the albuminous disc is surmounted by a ring of uric acid is a sign of benignity. The arterial tension should be observed, likewise the heart, the presence of edema and minute symptoms of Bright's disease, which, if present, would indicate the progress toward confirmed renal sclerosis; the prognosis is better, but, after the age of 50, the renal lesions do not regress.

The majority of infectious diseases produce more or less serious albuminuria, but the latter is very temporary in pneumonia, rheumatism, diphtheria, erysipelas, etc. Other diseases, such as scarlet fever, syphilis, typhoid fever and puerperal infection, involve the kidney to a greater extent. Still more serious is tuberculous albuminuria. As to the albuminuria of gout, its gravity has been greatly exaggerated, because, far from producing a renal sclerosis, this eventuality may be avoided in the majority of cases.

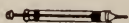
In life assurance the majority of these cases may be accepted and cyclical albuminuria is not a bad risk. Marriage may be permitted, if no symptom or renal insufficiency is noted. Neither pregnancy nor nursing aggravate orthostatic albuminuria.

The treatment is above all hygienic and a milk diet usually does more harm than good, because it gives rise to digestive disturbances and is an insufficient alimentation. It should only be resorted to if there is any evidence of a commencing uremia.

Original Abstracts and Translations

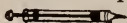
THE CLINICAL IMPORTANCE OF THE SERUM REACTION IN SYPHILIS. H. MUEHSAM (*Berliner klinische Wochenschrift*, 1908, No. 1) says that the serum reaction of syphilis is very important clinically as it occurs only in syphilitic subjects. Of eighty patients examined in the Berlin clinic 48 showed the reaction, and in all cases these were syphilitics. In ten cases a positive reaction was obtained without any clinical evidence of syphilis. One of these patients who presented a very marked serum reaction showed no signs of syphilis yet some months later she gave birth to a macerated foetus. In another case a woman gave birth to a fetus in which at autopsy the lesions of hereditary syphilis were discovered.

Unfortunately a negative reaction does not allow us to say positively that syphilis does not exist. A syphilitic child with clear manifestations presented an absolutely negative reaction while her mother showed a clearly positive reaction. This child died later and syphilitic lesions were found in the bones.

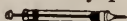


THE USE OF SULPHURATED MINERAL WATERS AS AN ADJUVANT TO MERCURIAL TREATMENT. DESMOULIERE (*Annales des Maladies Vénériennes*, February, 1908) publishes an interesting research concerning the action of mineral waters containing sulphur compounds on the tissues of persons who have been taking large amounts of mercury. He proved by examining the urine of these persons that the sulphurated waters secure the elimination of the mercury stored in the tissues. In his opinion the sulphur compounds in such mineral waters possess the property of liberating the mercury when it is in chemical combination with the proteid constituents of the tissues. He cites a number of experiments to prove his contention. It is a well-known fact that larger

amounts of mercury can be given with impunity if at the same time the patient drinks a sulphurated water.



ATOXYL IN THE TREATMENT OF SYPHILIS. V. VEDEL (*Annales des Maladies Vénériennes*, February, 1908) found that atoxyl did not produce the beneficial effects in syphilis which have been attributed to this remedy by some writers. Atoxyl was discovered, he claims, by Bechamp in 1863, but has only been recently re-discovered in Germany. In 1907 Salmon and Hallopeau used it, it is said, with some benefit in syphilis and since then it has been tried by several observers in that country. The present report comprises seven cases in which the remedy has been faithfully used for several months, and the results may be said to have been negative. Atoxyl, according to the author, is not beneficial either in secondary or in tertiary syphilis. In comparison to mercury and the iodides it is far less reliable and far less effective. Until a specific serum is discovered for syphilis mercury will remain the remedy par excellence in this disease.



A NEW PREPARATION OF CALOMEL FOR INJECTION.—Drs. Eudlitz, Lafay and Levy-Bing (*Annales des Maladies Vénériennes*, December, 1907) report the results of their experience with a new preparation of calomel, which is particularly adapted for use in the form of injections. Calomel offers one of the best means of treating syphilis, and the object of this study was to improve the technique of injection so as to remove the inconvenience thereof. The authors record 138 injections with this new preparation, and recommend that a very strong preparation of calomel be used in the same concentration as the older grey oil (40 per cent). The calomel is washed in ether or in boiling alcohol, and it is important to use the official ether which is pure and contains no water. All the manipulations with the drug should be performed away from light, which rapidly alters calomel. The best excipient for the preparation is composed of lanolin and vaseline oil, in varying proportions according to their temperature. The lanolin and the vaseline oil are made antiseptic by the addition of 5 per cent. of camphor to each. No anesthetic is added to the mixture, as the injections are

not painful. The formula of the new calomel mixture is as follows:

Porphyrized and washed calomel.....	4.00
Anhydrous camphorated (5%) lanolin.....	3.00
Medicinal camphorated (5%) vaseline oil....	3.00

Each cc. of this mixture contains 0.4 grammes of calomel, representing .434 grammes of metallic mercury. This preparation is made by simply mixing the ingredients and sterilizing. It presents the appearance of a thick cream, fluid at the ordinary temperature, which is stable and remains homogeneous provided it is not exposed to light.

The technique is practically the same as that employed in using grey oil. The syringe should be so constructed that the barrel is graduated for exact doses. The new preparation was very well tolerated and but very slightly painful. In some cases no pain whatever was felt.



ARHOVIN IN GONORRHEA. In the Muenchen med. Wochenschrift (April 21, 1908), Dr. Knauth, Surgeon of the Second Train Battalion, published from the Army Post Hospital at Wuerzburg, German, "A Contribution to the Internal Use of Arhovin in Acute and Chronic Male Gonorrhea." The many favorable reports regarding arhovin incited him to request permission from the authorities to experiment with the drug. He has in the past year treated 29 cases of gonorrheal disease with arhovin, namely, 11 acute, 11 subacute or chronic gonorrheas, and 7 gonorrheal epididymites. The patients received daily four to six arhovin capsules per os, and during the first acute inflammatory stage were kept in bed, on a bland diet—chiefly milk—and with local ice applications. Only when the discharge had become somewhat more sero-mucous were the patients permitted to walk about, resuming ordinary diet but without alcohol.

In the chronic forms the patients received the ordinary hospital diet, arhovin being administered in the same dose till the discharge ceased, the urine was clear and free from gonococci, and the inflammatory manifestations from the epididymis had retrogressed.

In all cases, even those with sensitive stomachs, arhovin was well tolerated; disturbances of the digestive organs were never complained of. Nor were exanthemas or renal irritations ever observed.

In the most acute stage the disagreeable and at times distressing symptoms, as urinary tenesmus, burning urination, painful erections, were influenced extraordinarily favorably. They usually became milder in the first night and, at the latest, disappeared definitely after the third day in the hospital. Not only did the first acute symptoms pass rapidly, but the further course of the process was also almost always visibly shortened. The average length of treatment in the acute cases was 30 days; and in 5 cases cure ensued within 2 to 3 weeks. All acute cases were cured, the process being limited to the anterior portion of the urethra, so that there was never any gonorrheal epididymitis or cystitis. Thus far none of the cases have relapsed.

The internal arhovin treatment was also successful in chronic forms of gonorrhea; the average duration of the disease was 40 days, and of the 18 treated only one suffered a relapse. The others must be considered cured, since they have passed the monthly medical inspections.

According to the author's observations, arhovin is a remedy which acts most favorably on the inflammation of the urethral mucosa in the most acute stage, allaying the pain. Moreover, its administration per os is an appropriate substitute for the injection treatment which, if not administered by a well-trained orderly, is not infrequently productive of more evil than good by causing injuries to the urethra and effecting migration of the gonococci to the posterior parts, thus leading to epididymal and vesical complications.

The author states that since he has treated gonorrhea by this method, the injection syringe has wholly disappeared from his division and, he trusts never to return.



EXAMINATION FOR THE SPIROCHETA PALLIDA. ARNING and KLEIN (*Annales des Maladies Vénériennes*, March, 1908) report the results of examinations for spirocheta pallida in 500 patients in the clinic at Hamburg. The

chancres were first carefully cleaned with petroleum ether, the serous secretion was obtained and carefully spread in very thin smears upon perfectly clean slides. In the case of chancres, the results were almost always positive when the deep serous material could be obtained (one-half centimetre from the surface of the chancre). The spreads were fixed in the plate and stained according to the technique of Preis (*Wiener Med. Presse*, 1906, No. 49). The preparation was covered five or six times by a mixture of 15 drops of Giemsa's stain, with 10 cc. of water. Each time the slide was heated until vapors were seen to rise from the fluid. The authors were also able to see the spirocheta alive and they kept the germ alive for four weeks in some instances.

Of 177 chancres, in which the clinical diagnosis had been made, 169 were found to contain spirochetæ. The cause for a negative result in the eight cases was the institution of local or internal treatment a short time before the examination. Of the 322 papules and mucous patches examined, 309 gave a positive, and only 13, a negative result. In 22 cases of hereditary syphilis a positive result was obtained in 11 instances, while the remainder showed negative findings. The authors were unable to find the parasite in tertiary lesions. They never found the spirocheta in non-syphilitic lesions, such as soft chancres, carcinomata vegetations, herpes of the lips or genitals, etc. They conclude that the spirocheta pallida is truly the pathogenic agent of syphilis. That in every suspected case, the parasite should be looked for systematically in the various lesions and that very frequently the presence of the spirocheta alone is of undoubted diagnostic importance.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M. D., EDITOR.

VOL. IV.

AUGUST, 1908.

No. 8

Contributed by the Author to The American Journal of Urology.

REPORT OF SOME INTERESTING AND OBSCURE UROLOGICAL CASES.

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RATHER than write upon any one subject appertaining to the uro-genital system I considered that a report of a few cases would be more interesting to you as specialists, for, as you know, the specialist gets all the more difficult and obscure cases and is compelled to arrive at an accurate and positive diagnosis.

Case 1—A woman 55 years of age who had always been in excellent health until just prior to the time I saw her first.

Her physician made a diagnosis of appendicitis and suggested immediate operation. At the operation it was found that his diagnosis was correct and a gangrenous appendix was found. During the course of the operation there was a profuse hemorrhage. The bleeding was controlled by clamp and ligature. The patient recovered from immediate effects of the operation but the abdominal wound refused to heal, there being a sinus which poured forth a large quantity of secretion.

The physician in charge suspected this to be urine and I was called in consultation.

Methylene blue was prescribed and the secretion from the abdominal sinus was distinctly blue. Some of the secretion

Read at the Annual Meeting of the American Urological Association, Chicago, June 1-3, 1908.

was collected in a test tube and was tested for urea. This test was positive. The methylene blue test and the urea test proved conclusively that the sinus was pouring forth urine.

It was suggested that a cystoscopic and ureteral catheterization be performed. I found that the ureteral catheter would only pass up the right ureter as far as six inches from the ureteral orifice. I used small sized catheters and catheters with different shaped points but was unable to pass beyond the obstruction.

My idea of passing a catheter was not only for diagnostic purposes, but I thought that if a catheter could be passed into the kidney pelvis that the kidney could be drained through the catheter, thus allowing the sinus to heal.

As the point of obstruction was six inches from the ureteric orifice, my conclusions were that during the operation, the external iliac artery had been lacerated and in controlling the hemorrhage the ureter had been caught in the ligature and necrosis followed, resulting in a urinary fistula opening through the wound in the abdominal wall.

A catheter was left in place for forty-eight hours at which time I tried again to pass a catheter through the obstruction, which resulted in a failure.

Suggested operation for the purpose of uniting the ends of the ureter and gained the patient's consent to nephrectomize, if it was impossible to join the ends of the ureters.

The function of the other kidney was tested thoroughly and appeared to be normal.

At the time of the operation I again passed a catheter into the injured ureter as far as it would go to aid me in the search for the upper end of the lower fragment, to act as a drain for the kidney while the ureteral wound was healing.

The incision was the ordinary one used for exposing the ureter. I found a mass of adhesions including the ureter, the external iliac artery and vena cava. I endeavored to gently break up these adhesions, but found this impossible, so concluded that the best thing to do was a nephrectomy, consequently the incision was extended upward, the kidney exposed and with difficulty, owing to adhesion, removed.

The pedicle being so short I found that it was impossible to ligate it, so left the clamp in place, for 72 hours.

The kidney was nearly twice the size of the normal organ; upon incision found several areas of septic infection with a large amount of pus in the pelvis. From the immediate effects of the operation the patient made an uninterrupted recovery.

Two or three days after operation my attention was called to a severe ulceration located on the left thigh in the region of the great trochanter.

Notwithstanding careful surgical care this sore became a deep foul sloughing area, which failed to respond to all ordinary methods of treatment.

There was no specific history, but nevertheless concluded to place her upon large doses of iodalbumin, which to my mind is far better than potassium iodide. The sore rapidly healed under the treatment. I have watched this patient carefully ever since the operation last September. The urine has been carefully examined from time to time and I found that the one kidney is functioning normally and the patient is in excellent health.

The interesting features of this case are these: The importance of the ureteral catheter in diagnosing accurately the location of the lesion.

The fact also that it could be used as a guide and for drainage of the kidney, if the ureters had been joined. In ureteral work this fact has not been mentioned before. A particularly interesting feature of the case is the rapidity of the infection of the kidney; only two weeks elapsed between the operations and the kidney was already markedly septic. This only goes to show how rapidly an ascending infection may travel.

Case 2—A physician, 52 years old. Family history negative. Previous history, for several years had rather severe pain in back.

Diagnosed the condition himself as lumbago. Accidentally he noticed some pus in his urine and consulted one of our leading surgeons. X-ray plate showed stone in his right ureter about four inches from its upper end. An operation was recommended and the ureter cut down and a stone

removed. This was about three years ago. The wound failed to heal, and there was a urinary fistula lasting for many weeks.

My acquaintance with the case began last May. Urinary analysis showed a marked purulent pyelitis. Suggested lavage of the pelvis.

Upon cystoscopic examination of the bladder found that viscus showed areas of chronic inflammation. The right ureteral orifice was swollen, red and had the typical golf hole appearance so clearly described by Fenwick.

I passed a catheter and found that there was an obstruction ten inches from the ureteral orifice. A very small catheter was used and passed into the pelvis. A sample of very purulent urine was collected. The pelvic capacity was measured and showed to hold 120 cc. of fluid. Diagnosis: stricture of the ureter at ten inches, with marked dilation of the pelvis. Tests for kidney functions showed that both kidneys were functioning normally.

Microscopical examination showed no involvement of the kidney proper.

This stricture was gradually dilated and at each treatment lavage of the renal pelvis was performed. Patient improved considerably and decided not to have treatments any longer. There was some discomfort of the deep urethra following the instrumentation. He has returned again after several months with considerable pus in his urine and I find that his inflammation has returned and the ureteral stricture has contracted once again.

My opinion of the case is that lavage will clean up the septic condition, but owing to the marked dilatation and sacculation of the pelvis with the accumulation of the urine which remains and becomes decomposed, the condition is apt to recur. I here suggest that just as soon as the condition is again cleaned up, the stricture dilated and the inflammatory process eradicated, to cut down upon the pelvis resecting a portion of it, transplanting the ureter into this, thus getting rid of this markedly secculated pelvis, and overcoming the chance for reinfection and possibly destruction of the kidney.

I feel that if the original operation had been performed a

little differently, that the resulting stricture may have been avoided.

Instead of cutting down on the stone and removing it through the ureteral wall, I believe it would have been better to have opened the pelvis and by manipulation with a pair of long alligator forceps to have caught the stone and pulled it upward into the pelvis. Another interesting feature of the case is the fact that the septic condition of the pelvis was removed by lavage of the kidney. Culture of the urine showed pure colon bacilli.

Case 3—Gentleman, age 74, sent to me by Dr. Andrews of Belvidere, Ill.

Family History, Negative. Previous History—as far as uro-genital conditions are concerned—negative.

Present History. Present trouble began several months prior to my seeing the case with frequent micturition during the night, accompanied by considerable pain. A short time later, about one month prior to my seeing him, urine became bloody. A specimen of urine was sent me, analysis was as follows:—

Color—Dark brown. Sp. G., 1016. Reaction—Neutral. No Sugar. Albumin—Present.

Microscopical Examination. Blood Globules—Considerable number. Crystals—Of Uric Acid and calcium oxalate in large numbers. Pus—Moderate number. Epithelia from the pelvis of the kidney—Moderate large number. Epithelia from the Superficial layer of the bladder—Moderate number. Epithelia from the Middle layer of the bladder—Few. Epithelia from the Deep layer of the bladder—None. Epithelia from the Prostate layer of the bladder—Moderate number.

Microscopical Diagnosis—Hemorrhage from the pelvis, due either to stone or irritation from the excess of crystals, together with hypertrophy of the prostate.

I suggested sending the patient to me for examination which was done. Rectal examination shows enlargement of the prostate in all diameters, particularly right side. There was some pain on examination.

Cystoscope was passed with some difficulty through the

prostatic urethra. The picture showed the bladder wall to be inflamed to a slight degree. The prostate protruded well into the bladder. Might mention here that there were 3 ounces of residual urine. Bloody urine was seen pouring from the right ureteric orifice which was edematous and red.

A ureteral catheter was passed through this orifice with difficulty.

The left ureteric orifice was quite normal in appearance. A sample of urine was collected which showed bloody urine.

As I always make it a rule to wash the pelvis and the ureter after catheterization, I did so with 1-12000 silver nitrate solution.

Microscopical examination of the kidney urine showed: Blood globules, pus, epithelia from the pelvis, uric acid and calcium oxalate crystals.

The patient was sent home and two days later passed a small stone from the pelvis into the bladder which was later passed through the urethra.

The bleeding discontinued. The physician in charge was directed to wash the bladder twice weekly with a silver nitrate solution.

This did not decrease the night frequency, but micturition was associated with much less pain.

I advised prostatectomy, which I will perform some time this month. I was particularly anxious to have the kidney condition improved before I attempted any prostatic work.

The important feature of this case is the cystoscopic findings which corroborated the microscopical examination.

Urinary microscopical diagnosis is particularly essential, for generally by a careful study of the epithelia present we are quite able to come to a definite understanding as to the exact location of the pathological lesion.

Case 4—Female, unmarried—age 37. Family History Negative. Previous History Negative.

Present History—About seven years ago urinary trouble began with frequency of urination. At the time of her first visit to me she was absolutely unable to hold urine during the day and was compelled to use a napkin continually. At night she has to get up seven or eight times.

Microscopical analysis of urine sent me before seeing her:
 Blood globules—Few. Casts—None. Crystals—Few uric acid. Epithelia from convoluted tubules—None. Epithelia from straight collecting—None. Epithelia from pelvis of the kidney—None. Epithelia from ureter—None. Epithelia from upper layer of bladder—Very numerous. Epithelia from middle layer of bladder—Moderately large number. Epithelia from deep layer of bladder—Quite a few. Epithelia from vagina—Few. Epithelia from mucous—Moderately large number. Pus corpuscles—Very numerous. Connective tissue—Few shreds. Fat globules—Few free fat globules as well as globules in the cells.

Microscopic diagnosis—Chronic ulcerative cystitis.

Patient was brought to me and cystoscopic findings were as follows:—

Slight amount of pain on passing the instrument. The bladder very sensitive and would not retain more than an ounce of fluid, but under continual irrigation I was able to make an examination. The bladder wall was markedly congested, the blood vessels appearing engorged and swollen.

The ureteral orifices were normal in appearance but just above and to the inner side of the right ureteral orifice there was an ulceration about the size and shape of the little finger nail. It was punched out, the edges were smooth and regular, the base was made up of red, firm granulation tissue.

It seemed to extend to the submucous tissue.

My diagnosis was simple ulcer of the bladder with chronic cystitis. This ulceration may be differentiated from the tubercular ulcer in the regularity of its edges, the appearance of its base, the absence of undermining of the margins, and of surrounding tubercles and of tuberculosis in the other organs.

In this case the ureters were catheterized and a sample collected.

Examination showed normal urine from both kidneys.

Three days later I had the patient come again and through a Kelly speculum, after drying the bladder thoroughly, touched up the ulceration with a saturated solution of potassium permanganate. I performed lavage of the bladder

three times a week with 1-2000 formalin solution (filled that viscus to tolerance in the beginning could only use 3 ounces). She has been under my care ten months. The ulceration healed in 3 weeks.

At present the bladder will hold ten ounces and she passes the urine about every $2\frac{1}{2}$ hours by day and arises occasionally only once at night.

This patient had been treated for some time with urinary antiseptics and had had the bladder opened and drained on one occasion.

Case 4—A female, married, had had bladder trouble for several years. Had five operations, the bladder being opened and drained; these were all followed by relief for a short time. She came into the hands of Dr. Loewry of Oak Park, who called me in consultation. I recommended cystoscopic examination. She was so tender and sensitive, that I was compelled to resort to general anesthesia before I was able to come near her.

She was in such a condition, that the urine ran from the bladder spontaneously both day and night.

Cystoscopy revealed a marked contracted bladder holding only four ounces.

The bladder mucosa was intensely red, considerable pus and shreds were floating around in the fluid. There was a marked ulceration extending along the old bladder scar for $\frac{3}{4}$ of an inch. Kidneys were normal, as catheterized specimen showed.

Diagnosis: ulceration of the bladder.

I turned the case over to Dr. Loewry with instructions to wash the bladder daily with formalin, following an injection of a solution of one of the silver salts. He tells me that in the beginning he had a terrible time, as the woman would almost faint at the passage of the catheter.

Dr. Loewry tells me that she is entirely cured. Going two or three hours without passing the urine and sleeping through the entire night. Her bladder capacity is about 8 ounces.

During the course of the treatment which extended over about six months, she had one relapse but her condition was

not nearly so bad as in the beginning. The operations were all performed without a correct idea as to the nature of the trouble.

Cystotomy is an easy procedure, but it must be borne in mind that frequent operations upon the bladder will produce a marked contraction of that organ followed sometimes by very annoying sequelae.

Case V. Female, 39. Unmarried.

Family History. Father died of some kidney condition, one sister has chronic bladder trouble, and one brother has had two attacks of severe renal colic.

Previous History. All the diseases of childhood. Ten years ago had some uterine trouble and had curettage performed. At that time had a catheter pass which was followed by a marked inflammation. Had pain and burning in bladder and frequency of micturition. Was about three months under treatment. Last February had an operation for some ovarian trouble. The wound began septic and she began to have bladder symptoms. Had also at this time a discharge from the vagina. This was examined and report showed gonococci present.

The patient had frequency of micturition with burning pain, which was continuous and particularly marked immediately after emptying the bladder and would last about half an hour. She was treated by bladder lavage.

I examined the vaginal secretion and could find no evidence of gonorrhea.

Microscopical urinary report was as follows: Blood Globules, very few; Pus Corpuscles, moderate number; Epithelia from upper layers of bladder, few; Epithelia from deep layers of bladder, abundant; Fat Globules, both in free groups and in the pus corpuscles and epithelia; Connective Tissue, shreds abundant; Mucus, threads and corpuscles moderately large number; Microscopical Diagnosis, chronic ulcerative cystitis.

Cystoscopic examination was recommended. I found the urethra of exceeding small calibre. Dilatation was accompanied with considerable pain, which was overcome by application of a solution of cocaine to the urethra.

Passed cystoscope and found a markedly inflamed bladder with an area of ulceration in the posterior wall between the ureteric orifices, and another area just inside of the internal urethral orifice.

Ureters were catheterized and collected specimen showed two normal kidneys.

She came for treatment three times a week; at each visit I dilated the urethra and washed the bladder per catheter with formalin in solution 1-2000 followed by 2 drams of a solution of nargol 2 per cent. She improved rapidly under treatment, pain and discomfort quickly disappeared and micturition only 4 or 5 times daily and not at night.

These few cases which I have brought before your attention prove conclusively that the cystoscope and ureteral catheter are absolutely essential in urinary diagnosis.

Not too much can be said concerning the paramount importance of microscopical urinary analysis, for by the characteristics of the epithelia we are able to exactly locate the point of their desquamation.

If my paper has in any way thrown any light upon some subject of interest. I will be fully repaid for the time I spent in collecting the data upon the reported cases.

A CASE OF ORCHIDOPEXIA BY HAHN'S METHOD, WITH REMARKS.

By DR. JOSEPH BUDDE.

RETENTIO testis means an anomaly in the location of the testicle; it may remain within the abdomen at its original point of development, or at any spot along its course when descending downwards to the scrotum during fetal life. Two principal types are to be distinguished, namely, the abdominal and inguinal, according to the position of the testicle within the abdomen or the inguinal canal; the organ may be retained at the internal or external inguinal ring. The abdominal type is of less interest, because it is not apt to give rise to symptoms and is exposed to fewer injuries on account of its protected position. In few cases only, has the organ been found functionally of value.

The case is quite different when the testicle is retained in the inguinal canal. It is very often subject to pathologic changes and gives rise to many symptoms. Atrophy is probably the most frequent result of retained testicle in the inguinal, or when the organ is at one of the two inguinal rings. Atrophy occurs so frequently that Follin went so far as to say that it was always present. It is caused either by a disturbance in the vascular supply, the blood going to the organ being cut off by compression of the vessels of the spermatic cord, and it will then show fatty degeneration. Again, atrophy may be the result of various inflammatory processes to which a testicle retained in the inguinal canal is so readily exposed, and here the atrophy will be due to the development and contraction of fibrous tissue.

Inflammatory processes are common in retained testicle and usually result from strangulation, in which case very severe symptoms appear, similar to those of intestinal strangulation. The patient complains of severe pain, violent colic, distension of the abdomen and even fecal vomiting.

Similar symptoms appear in torsion of the spermatic cord, a relatively frequent occurrence and which usually results in hemorrhagic infarcts in the testicle. Other causes of inflammation are gonorrhea and trauma.

The principal inconvenience of parorchidium, however, is that it very frequently becomes the starting point for the development of malignant neoplasms and Godard mentioned 6 cases out of 38 instances of cryptorchism, in which the retained testicle underwent malignant transformation and it is usually the inguinal form which gives rise to this, because when the organ is located within the abdomen, a malignant tumor formation has been very rarely encountered. From all these very briefly mentioned conditions to which a parorchidium is exposed, the seriousness of a testicle retained in the inguinal canal is easily perceived. Parorchidium should be looked upon as a surgical affection and be treated as such.

For this reason, the majority of writers in the past upheld that every retained testicle should be removed as soon as it gave rise to any symptoms, but von Bramann advised removal of the testicle only in those instances where the organ was atrophied, or in elderly people. In young subjects, especially before the end of puberty, castration should be resorted to as little as possible, and one should strive to bring down the testicle into the scrotum, as it has been well demonstrated that, if this is done before complete development of the individual has taken place, the testicle will develop in the scrotum in a normal way and become capable of performing its functions.

The treatment heretofore resorted to consisted mainly in bringing it down to the scrotum by massage and, afterwards, a truss was applied having a forked shaped pad over the inguinal ring, which not only pushed the testicle downward, but also, by pressure on the processus vaginalis, the latter could be made to close. However, this treatment is tiresome and, of course, is only successful in those cases where the testicle protrudes from the external ring.

For most cases a surgical interference is required and of late years a radical operation has almost without exception been preferred by surgeons. The first few cases were not

encouraging. Adams lost his patient during the operation; Partridge had to perform castration after all; in Horsley's case the testicle remained painful, while in other instances, the organ returned to its former position. Better results were obtained by Schüller, Kocher, Nicoladoni and others. The operative replacement of the testicle, which is termed orchidopexia, is accomplished by the following technique: an incision is made following the direction of the inguinal canal, from the internal inguinal ring down to the lower portion of the scrotum, the structures being incised in layers until the testicle covered by the processus vaginalis is exposed. Then the organ and spermatic cord are dissected up as far as the inguinal canal, the tunica communis is carefully separated above the testicle and the organ is pulled down into the scrotum. Its lower pole is attached to the scrotum by sutures and also to the scrotal septum, and, in this way, it is anchored. Kocher also introduces several sutures through the tunica communis of the spermatic cord and the aponeurosis of the external oblique muscle.

The results of this operation may be called good when compared to the older methods of treatment. Nevertheless, there are still some defects which of necessity must be present. In the present stage of asepsis, the relatively large incision is easily taken care of and does not enter very much into the question, but a long cicatrix remains which may later on cause troublesome symptoms. The principal disadvantage is that the testicle again becomes readily displaced so that in some cases the ultimate results were nil. In the earlier cases the return of the testicle to its original position almost always occurred, and even with the later improved methods, as has been particularly pointed out by Tuffier and Richelot, recurrence of the condition is far from being uncommon. Even if the organ does not return to its original place, it may retract so as to be on a level with the penis or external inguinal ring and this position again gives rise to various symptoms, even the pressure of the trousers being made uncomfortable and sometimes bending of the hip joint causes pain in the organ. At any rate, this method of fixation, given results, cannot be considered as ideal.

An operative technique which has been carried out by Hahn approaches more nearly a perfect operative result and I would briefly describe it and afterwards discuss its advantages. The steps of the operation are as follows: parallel to Poupart's ligament and over the swelling formed by the testicle, an incision about 6 cm. in length is made and the soft structures cut layer by layer until the tunica vaginalis is exposed. Then, the cavity in which the testicle lies is opened, and the organ is easily dissected with the finger and then a canal is made from the lowest angle of the incision as far down into the scrotum as is possible. This is also accomplished by pushing the forefinger down the canal into the scrotum. Here, at the lowest point of the cavity made in the scrotum, an incision about $1\frac{1}{2}$ centimetres is made in the skin so that the canal which has been created opens at the lowest point in the scrotum. This opening is then enlarged by stretching it with forceps in order to allow the testicle to be pushed through. After mobilization of the spermatic cord, the testicle is brought down the canal made by the finger and through the skin incision at the scrotal base, so that it lies outside of the scrotum. To prevent its returning to its old location, the scrotal skin incision is closed by a few sutures, and the incision in the inguinal region is entirely closed by buried sutures and a bandage is applied over the testicle, but loosely, in order to avoid pressure necrosis. On the sixth or seventh day, the skin incision in the scrotum is enlarged after removal of the sutures and the testicle is pushed into the pocket and the incision is then closed over it by sutures.

The following case, under my observation, is of some interest. W. L., 18 years of age, a well built young man, in excellent physical condition. His parents are healthy and no case of cryptorchism has been known in the family. The patient has never been seriously ill, although, as a child, he never could play with his comrades because, when walking, he often complained of slight pain in the right inguinal region, which became more marked when climbing or running. When at school he noticed a swelling in the right inguinal region, which could be moved downwards, but

other than this discovery he attached no further importance to it. At the age of 14 years he became apprenticed to a shoemaker. At first he felt no pain, but gradually after sitting for a long time, especially when he was obliged to bend the upper part of his body forwards, he would often experience severe pain in the inguinal region, which finally increased to such intensity that he was obliged to give up his trade. He then became an indoor man, but could not stand it long, because running and climbing over the stairs again resulted in the production of severe pain. In his next employment as a packer he got along fairly well at first, as he did not need to stoop and could carry out his work in the erect position. Recently, he has also had pain while standing, which became severe. The most disagreeable pain occurred when any abdominal pressure was exerted, such as in coughing and sneezing. As a rule, the patient noticed during severe attacks of pain, an increase in the size of the tumor, which usually soon subsided. All these symptoms finally induced him to submit to operation.

Examination showed the right half of the scrotum smaller as compared with the left and the testicle was absent. The latter could be distinctly felt in the inguinal region, one pole extending about one centimetre out of the enlarged inguinal ring, and by gentle massage the testicle could be still further brought out. The organ was extremely sensitive to pressure.

Operation was performed on July 10th. Directly above Poupart's ligament and parallel to it, an incision about 6 cm. was made and then deepened as far as the tunica vaginalis. This was split open obliquely to the extent of some 3 cm. and about an ounce of serous fluid escaped. The testicle was somewhat small, but not atrophied. With the index finger a canal was bored down to the lowest point of the right scrotal sac and then an incision $1\frac{1}{2}$ cm. long was made through the skin and connective tissue of the scrotum. After the spermatic cord had been freed and mobilized, it was not difficult to pull the testicle down into the canal and bring it out through the scrotal skin incision like a button through a buttonhole. The incision over the inguinal canal was closed

with buried catgut sutures and a loose dressing applied over the testicle, after the scrotal incision had been reduced in size by a few sutures.

On the following day he still complained of slight pain, sleep was fairly good and there was no elevation of the temperature.

A week later, the second step in the operation was undertaken. On removing the dressings, it was found that the testicle had in no way suffered and looked normal, moist and glistening, and presented but a slight hyperemia. After removal of the sutures in the scrotal incision, the latter was easily enlarged by dilating with forceps so that the testicle could be pushed back into the scrotum, after which the opening was closed with sutures. The progress of the case was perfectly normal, the testicle remained in its proper place and the patient was free from all symptoms.

From the above description it at once becomes evident that Hahn's technique is a decided improvement in the treatment of retained testicle. Both of the incisions are so small that there is no difficulty in their after treatment, the resulting cicatrices give rise to no trouble on account of their small size and their very favorable locations. This differs from the earlier operative technique devised by Schüller. In his operation a long incision is made from the inguinal region to the lowest point of the scrotum, which can easily give rise to troublesome symptoms after recovery from the operation. Then, again, it must be admitted that proper dressings are difficult to retain in position after they have been applied, so that there is always some chance of infection.

Furthermore, in all cases operated on by Hahn's method, the testicle has always remained in the scrotum. This is probably due to the fact that the operation is done in two sittings, so that the newly formed canal closes down and thus, when the testicle is finally placed in its scrotal pocket, it cannot return upwards towards the inguinal canal. In the older method the testicle was apt to return to its original location even when carefully sutured in the scrotum. Wolff reported five cases operated on by him by Schüller's method and admits that, in most of them, the testicle did not remain

in the scrotum where it was sutured, but had later on become dislodged to the side of or directly below the root of the penis, and this condition of affairs also occurred in Körte in his cases. Wolff added, however, that, although this displacement of the testicle occurred, he had never seen it give rise to any symptoms; nevertheless, this can be easily understood, because the testicle did not actually return into the inguinal canal. During severe exercises or coitus, this position of the testicle would be no great improvement over the original. Then, again, one should recall that, when the testicle remains in the canal, it cannot develop, but, when freed and brought down, this takes place and the organ will functionate normally. This, naturally can most advantageously take place if the organ lies in the position where it is least exposed to external injury and, consequently, Hahn's operative realizes this to perfection. The many external injuries to which a retained testicle is exposed during its stage of development, led many surgeons to consider replacement of the organ as useless and they believed that castration was alone useful.

The only disadvantage in Hahn's method might be found if a bilateral operation had to be done, but this when aseptically undertaken and the dressings loosely applied, both testicles looked healthy at the time of the second stage of the operation and in all reported cases, the process of healing was perfect. I, therefore, believe that this operation should take the place of all others as its results are certainly more than satisfactory.

LONDON LETTER.

THE TREATMENT OF GONORRHEA IN THE MALE.

LONDON, April 15, 1908.

At a recent meeting of the Chelsea Clinical Society, Dr. J. H. Dauber in the chair, the subject of gonorrhea in the male, with special reference to treatment, was very thoroughly and ably discussed. In opening the discussion, Mr. J. G. Pardoe said that, in the first place, it was necessary to consider the prophylaxis of gonorrhea, not by means of the obsolete Contagious Diseases Act, but by more modern methods which had been introduced into other countries, but not with so much success in England, owing to public opinion. In the German Navy an important measure had been adopted to prevent gonorrheal contagion and probably first started with the defense of Pekin by the allied forces. Dr. Gustav Tandler of the German Navy, went to Pekin in 1903. Two hundred sailors of the Embassy Guard were returned by him to Europe. Of those 200 sailors, who had done three years' service, 40% had suffered from primary gonorrhea in China and had been treated in the ordinary way after the disease had well developed.

Tandler had a fresh draft of 170 men under his medical care and they were under him for three years. He introduced a course of compulsory prophylaxis, by which the men were obliged to report themselves, not only on the first symptoms of the venereal disease declaring itself, but also immediately after sexual intercourse, under heavy penalties if they neglected to do so. These 170 men underwent 1,560 prophylactic treatments. Of these 1,560, 15 men only got gonorrhea, which makes it 1.6% in 170 seamen. Those men were instructed to report immediately after intercourse, and they were injected in the anterior urethra. By that was meant only that portion of the urethra which lay in front of the inferior layer of the triangular ligament in front of the

compressor urethrae muscle, in other words the bulbous and penile urethra. The injection was usually 10% protargol in an aqueous solution or in petroleum jelly. One, or at most two, injections were given after intercourse, and the results were as described. It was not necessary to further elaborate the statistics of prophylaxis in the German Navy, and it was probably sufficient to say that certain German Naval Officers had stated that the admissions of liberty-men for venereal disease had in the last three years dropped, at a very moderate estimate, 50%. That was striking, but it was hardly to be hoped that, with public opinion as it is in England, it would be possible in the public services to institute compulsory prophylactic treatment. And it was a point which was capable of debate from one side or from the other, whether the fact of minimizing the perils incident to illicit intercourse would be an incentive to immorality, or the reverse. But our business as physicians was not so much to consider the morals of our patients as to prevent or cure disease, and if, by any means, that could be accomplished, that means was probably justifiable.

He next passed to the actual treatment of acute gonorrhea. That seemed to fall naturally under the headings of (1) abortive treatment, (2) modified abortive treatment, and (3) expectant treatment, the last of these being the most old-fashioned. By abortive treatment he meant absolutely cutting short the disease when infection had already taken place, before it had had time to arrive at the so-called acute stage. And pure abortive treatment was useless to attempt after more than twenty-four, or at most forty-eight, hours had elapsed from the beginning of the symptoms. In other words, to secure true abortion of gonorrhea, one must have the patient under care when the symptoms simply consist of slight itching of the meatus, with, perhaps, slight gluing of the lips and a little sero-purulent discharge. After acute yellow or yellowish green discharge had commenced, it was of no use to attempt to treat it by the abortive method. What methods were there at the hand of the profession to secure that true abortion of the disease? There were several. He desired to remind his hearers of the mode of in-

fection and spread of gonorrhea along the urethra. It commenced at the meatus and spread by direct continuity in the epithelium of the mucosa. And in the first four or five days, unless the patient was unusually susceptible to the gonorrheal poison, the infection was limited to the first inch or two of the urethra. That fact anybody could prove by locally anesthetizing the urethra and examining it by means of the urethroscope, when he would see that the blush of inflammation was limited to the first inch or two of the mucosa. That gave the clue to the abortive method, which could be used by those who were skilled with the urethroscope, by painting through a tube the entire mucosa from a point a little behind that which was obviously infected and red, forwards to the meatus. The same result was obtained by those who had not a urethroscope, or who were not skilled in its use, by limited anterior urethral injections. In those cases where abortive treatment was carried out by limited injections the urethra should be occluded by pressure of the finger and thumb at the peno-scrotal angle. The injection should not go into the bulbous urethra.

He intended only to direct attention to the broader aspects of the subject, and he did not, therefore, detail the large number of substances which could be used for the purpose. In his own opinion, protargol and silver nitrate were the best agents, and they could be used in considerable strengths if the mucosa were previously anesthetized; that is to say, 10% protargol or from 2 to 4% silver nitrate. The method itself was very simple. The injection should be given as soon as possible. It should only be repeated two days later. If the case was going to be successful, the probability was that those two injections in a period of forty-eight hours would be sufficient. The disease was cut short and nothing further followed. The other method was by means of anterior urethral irrigation—less severe, probably equally efficacious. The agent used was generally a 1:1000 permanganate of potassium, and the irrigations should be given with the same restrictions as to the stopping of the backward flow as already mentioned, and given night and morning for at least five consecutive irrigations.

Next, he wished to allude to the class of cases where the discharge had already become well established, in which there was the usual pain and scalding, the painful erections at night, and all the other classical phenomena of gonorrhea well in evidence. In such a case as that the pure abortive treatment was useless, and one had to decide between the two methods—the expectant method, and the modified abortive method. There could be no question that anterior irrigation in those cases, or a large proportion of them, was exceedingly successful in causing a complete cure in certainly half the time that the expectant treatment would. In a certain proportion of cases, where, perhaps, the disease could not be cut short very much by irrigation, it could be rendered very much less unpleasant where the patient had to walk about in following his business, with his urethra discharging freely, causing great pain and discomfort. Moreover, by well carried out modified abortive treatment, the risks of the backward spread of the disease to the bulb, the membranous and the prostatic urethra, and the urethral appendages and testicles was very much limited and minimized.

The best agent was usually permanganate, and, in cases of acute gonorrhea, where the urethra was tender and sore, and where manipulation was, therefore, distinctly unpleasant, the strength of the solution should be reduced at the start. To begin with 1:5000 should be used, gradually increasing to the maximum strength of 1:1000. Irrigations should be given twice a day, and the whole treatment should last ten days to a fortnight. It was of no use to miss one or two of these irrigations; if the patient desired the best effect, he must adhere to the treatment all through. The irrigations should not be given by a catheter; no instrument should be passed into the urethra, but they should be given by means of the ordinary irrigator can holding two or three pints, suspended one or two feet above the patient, lying recumbent on a couch. The nozzle, which should be blunt, should just fit the meatus and not enter more than half an inch. By gently occluding the meatus with the blunt nozzle and alternately occluding and relaxing the part, one could balloon the anterior urethra back to the bulb, if it was

thought that the inflammation had got that far, or stop it at any point in its backward course. By that method one could flush out the portion diseased. The reason for avoidance of passing instruments down the urethra was that, however gentle it might be done, in the inflamed condition of the mucosa, there was the risk of periurethral abscess being caused, or of slight lacerations leading to indurations, which might eventually become strictures. In a considerable proportion of cases, the result was excellent; the discharge disappeared in two or three days, and though, if the treatment was stopped at that stage, the discharge might come back in its original intensity, yet if persisted in, it did not return, and the result was that the urethra soon became dry and remained so. That was the bright side of the picture. The other side was that discharge might return three or four days after ceasing the irrigations. Those who were wise, would, when instituting the treatment, warn the patient that, having come when the disease was thoroughly established, abortion could not be guaranteed, but there was a good chance that it might be shortened in its course, and it could be promised that the disease would be less unpleasant in its incidence.

The other method was the expectant one, and he wished to mention certain points which were distinctly of interest in discussing the two methods, the drawbacks of each respectively. Those of the modified abortive treatment lay largely in the question of the detail used in carrying them out. If one was unfortunate enough to drive the gonococcal pus back into the deep urethra in trying to abort an anterior urethritis, one certainly ran the risk of setting up acute prostatitis, vesiculitis and epididymitis; and patients who had, perhaps, had many attacks of the disease cured before by simple means, without unpleasant complications, if treated by the new method, and they had one or other of the above complications, would never be persuaded that the doctor was not at fault. Therefore, one should be very careful to limit the treatment to the anterior urethra, and one should never allow the patient to carry out the treatment himself.

On the other hand, there was the expectant method of

treatment—the old-fashioned method, by alkalies, and sedatives. That method certainly, in a large number of cases, gave most excellent results; and, although with the expectant treatment susceptible individuals got complications, yet, his own opinion was that many of these were due to the improper use of the ordinary urethral injections in the acute stages of the disease. That was one of the debateable points which he mentioned at the onset, and perhaps it was one of the garments which would be worn to shreds in the subsequent discussion. If he were going to treat a patient by the expectant method he would prohibit absolutely the use of injections until all the acute symptoms had subsided and the discharge had become of a more milky consistency, in other words until about the third or fourth week of the disease. At that stage and onward he thought anterior urethral injections would be of benefit. He treated his cases with copious diuretics and alkalies. It was known that the gonococcus did not live in alkaline media. He gave urinary sedatives in large doses, such as a half to one drachm of the tincture of hyoscyamus, purgation, and above all, rest. The latter was most important. So far he had been speaking of acute anterior urethritis. Acute posterior urethritis was another matter altogether, and he desired to record his firm opinion that irrigation for acute posterior urethritis was totally unjustifiable. That was an opinion in direct contrast to the originator of urethral irrigation, namely, Janet, who treated a large number of patients with acute posterior urethritis most successfully by posterior irrigation into the bladder. There were cases on record where posterior irrigation had been used in acute urethritis where cystitis, ascending uretero-pyelonephritis, and death had resulted. If that series of events occurred when the patient was being treated by the expectant method, blame was not passed upon the practitioner, but if he were so unfortunate as to have such events when treating a case by posterior irrigation, it would be most difficult to avoid this conclusion that this very serious result was due to the method employed, while other minor ills occurred with too unpleasant a frequency when the posterior irrigation was used in acute posterior urethritis. Therefore,

he treated his cases by the expectant method, by hot hip-baths, suppositories, and various alkalies and urinary sedatives, and, if necessary, by morphia.

Lastly, it was essential that he should mention something about the serum treatment of the disease and of the inoculation method, which had met with a certain degree of success, particularly in the fulminant type of the disease. He would not give a recital of cases from his own practise, though he had had some striking ones, but would simply say that by means of the inoculation of vaccines certain cases of fulminant gonorrhea, attacking rapidly the whole of the lower genito-urinary system, and the joints and eyes, had recovered with remarkable rapidity under the use of the gonococcus vaccine, and certain cases had apparently benefited by the use of polyvalent streptococcic serum, which had been used because it had been found that the gonococcus could not live in culture media impregnated with the polyvalent serum.

The chairman remarked that the results of gonorrhea were often disastrous and far reaching, affecting sometimes not only the present generation, but the next. The subject of the prophylaxis of gonorrhea was a very large and debateable one. It had been discussed in parliaments and councils, by the laity as well as by the profession, and there was still a great difference of opinion as to what were appropriate measures for the community to adopt. It was a vast question, and could not be thoroughly discussed; but an interesting phase of it was whether prostitutes should be allowed to solicit in the streets and public places of entertainment, or whether, instead, houses under Government control should be tolerated and legalized. But those and other questions were outside the scope of the present discussion, and whatever the private opinions of the medical men present might be, they would not, he feared, influence the course of legislation. An important point which Mr. Pardoe did not refer to, but which affected the question closely, was that the practitioner might, in his own sphere, point out to the public the importance of circumcision. It was agreed in the profession that this was one of the best prophylactic measures against venereal disease, and there was no doubt that men who had been

circumcised did not acquire gonorrhea with the same frequency as those with a long prepuce and moist glans. He thought that circumcision might be advised with propriety as a useful and cleanly prophylactic measure against gonorrhea and syphilis.

All German methods did not commend themselves to him, and the compulsory methods in the German services did not appeal to him favorably. He could hardly imagine an English medical man being willing to wait and hear the report of soldiers and sailors immediately after connection, and attend upon them within a short time and inject their urethrae. The men might use a little protargol themselves. He believed that sera and vaccines had a great future. Rogers and Torrey, in America, had done much work in that direction, and spoke most favorably of it. The serum treatment seemed such a simple and cleanly method that he hoped it would be possible to rely upon it.

Mr. Aslett Baldwin said that, when a person who had a number of attacks, these tend to become less acute, so that immunity, more or less partial, is gradually developed. It not uncommonly happens that a patient appears complaining that he has ricked himself or tumbled over something, and one finds on examination an acute epididymitis. In these cases, when very acute and painful, he had always found very rapid relief follow the administration of tartrate of antimony and sulphate of magnesia—one-sixth of a grain of the former and a drachm of the latter in an ounce of peppermint water every one or two hours, till they had taken six doses or been sick; in either case they take no more. They are recommended to rest in bed with the testicles supported high as the pubic bone. Glycerate of belladonna is painted on the inflamed part and hot fomentations are applied and renewed every hour; equal parts of guaiacol and lanolin form a very useful ointment at this stage. As soon as the inflammation begins to subside equal parts of ung. bellad. and ung. hydrarg. co. are applied and the fomentations continued. When the patient is allowed up, the ointment is still applied and the testicles well braced by a suspender. As soon as the first medicine is omitted the patient is given sodii

salicylatis gr. 10, potassii iodidi gr. 5 three times daily, and, if necessary, a small dose of sulphate of magnesia before breakfast, followed by three-quarters of a tumbler of hot water. As soon as the tenderness will allow it, the compound mercurial ointment is rubbed into the indurated epididymis daily, after washing with soap and warm water, and instruction given that, if the skin becomes inflamed, the ointment must be discontinued for a day or two. This massage is commenced as early as possible in order to get rid of the inflammatory exudation before it organizes into fibrous tissue, causing occlusion of the epididymis and sterility. Where this is not being accomplished satisfactorily the dose of iodide should be increased and a drachm of the liq. hydrarg. perchloridi added. He believes that the hypodermic injection of fibrolysin is useful, or its equivalent—thiosinamine and salicilate of soda. The latter is added to make the thiosinamine soluble. When using this drug he has injected it under the skin of the back every other day. In epididymitis he allows the patient to use an injection, such as sulphocarbolate of zinc, two grains to the ounce, in the anterior urethra four times daily after micturition, retaining the injection for two minutes.

After the subsidence of an acute gonorrhea it is not uncommon for the patient to be troubled with gleet or the passage of shreds in the urine. For successful treatment it is necessary to locate the parts where the inflammation persists, or the glands or pollicles where the gonococci may be lurking beyond the reach of irrigations or injections. The meatus should be held apart and pressure made from behind forwards to see if the pus can be squeezed out from the small glands in that region; the finger should then be passed along the under surface of the penis, palpating the anterior urethra in search for indurations. These can sometimes be felt by the patient himself and not by the surgeon. The patient should then pass urine into three or four glasses, about 2 oz. into the first and 5 into the second. If the flocculi are mainly limited to the first, they indicate trouble in the anterior urethra; if the urine in the second glass is cloudy and contains flakes, it points to the posterior urethra; especially is this so if the third

and fourth glasses contain cloudy urine. Thin, filmy flakes are probably from the anterior urethra, shorter and more solid ones from the posterior. Considerable quantities of muco-pus in the last glass probably come from the bladder. If the anterior urethra is injected or irrigated with a colored solution and the urine is passed afterwards, flakes from the posterior urethra will be unstained.

In dealing with a lesion of the anterior urethra the most exact and scientific method is to introduce a urethroscope and noting the position of any tender spot as the instrument sinks by its own weight. When the cannula has passed as far as it will go the left wrist is rested on the patient's groin and the cannula steadied by the left hand, while the obturator is removed; this is often best done by at first slightly rotating it; it must not be removed with a jerk, or the end of the cannula will hurt the patient.

A long, thin stick with cotton wool twisted on its end, is then gently passed to the bottom of the cannula and any of the lubricant present is carefully removed; unless this is done no proper view of the urethra will be obtained. The door of the instrument should now be closed and some air passed in, and the opening in the triangular ligament examined, likewise each part of the urethra as the instrument is slowly withdrawn. In this way congested patches, inflamed glands, ulcers, granular patches, warts and narrowings of the canal are seen. By inflating and deflating it can be estimated if an inflamed part is lissom, showing the existence of superficial inflammation, or whether it is unbending and stiff, showing deep infiltration likely to lead to stricture formation. Congested patches are treated by the application of nitrate of silver, commencing with 1%, applied two or three times a week, according to the effect produced, and gradually increasing in strength as may be necessary; in some cases 60 grains to the ounce may be applied, any excess being carefully mopped up. Iodine liniment, carbolic acid, or 10% sulphate of copper solution are applied in this way. The silver and iodine are the most useful. Occasionally solid silver nitrate is applied to an obstinate granular patch, or it may be incised longitudinally and superficially, the subsequent scar-

ring causing obliteration of the vessels. Iodine or mercury ointment rubbed into the penis externally to the patch will assist resolution. Obstinate inflamed and patulous glands are treated by electrolysis, or the bent end of a fine probe armed with solid silver nitrate may be inserted into each with a fair prospect of cure. Retention cysts are best treated by electrolysis or by solid silver nitrate to their interior after incision.

A discharge from the posterior urethra is treated by large irrigations with dilute antiseptic solutions if no irritation is caused and improvement is continuous. The irrigations are preceded by massage of the prostate and seminal vesicles. The prostate is massaged gently from each side towards the middle line and then along the middle line backwards. The seminal vesicles must be massaged carefully bearing in mind that their ducts are very small, and will only allow their contents to pass at a certain rate. Considerable pressure will at times have to be made on the patient's perineum before the index finger can reach high enough up in the rectum.

If progress is not satisfactory after this treatment has been applied daily for about fourteen days, instillations of silver nitrate are injected into the posterior urethra twice a week by means of a Guyon instrument, or Ultzmann syringe. The strength of the solution is at first one per cent. and gradually increased to 4% if improvement is obtained. The end of the syringe is inserted within the anterior end of the compressor urethrae muscle; this is generally over 5 inches and under 7 from the meatus, and can be felt to suddenly give way and admit the end of the instrument after gentle, but persistent pressure. Ten or 15 drops are instilled at a time. If there is much pain 10 drops of a 4% novocain solution may be injected a few minutes previously. If, at the same time, there is obvious discharge from the anterior urethra, about 10 drops of the 1% solution may be left along the anterior urethra as the instrument is withdrawn. If the discharge from the posterior urethra persists in spite of this treatment, the prostatic urethra may be lightly cauterized from behind and forwards two or three times through the prostatescope with solid silver nitrate. The above instrument cannot be used until anesthesia of the deep urethra has been

obtained. When it is in place it may be seen that the sinus pocularis, which opens on the summit of the verumontanum, is somewhat gapping, a stylet dipped at its point with silver nitrate should then be passed for a quarter of an inch into the sinus.

If treatment of the chronic posterior urethritis appears to make the condition worse, or if it has not distinctly improved after about six weeks, it may be well to leave off all local applications and give the patient general tonic treatment and change of air. It should be remembered that the presence of flakes in the urine may be kept up by injections.

Inflammation of Cowper's glands is made evident by tenderness and pain, and perhaps a palpable swelling to one side of the perineum just in front of the anus. When present only the mildest injection must be used and only in the anterior urethra. The patient should be put to bed, the bowels kept open, and a hot water bottle applied to the perineum. If the condition becomes chronic, iodine or mercurial ointment should be rubbed over the gland. In some cases it must be excised. If suppuration takes place an incision should be made early to prevent burrowing of the pus.

An intermittent discharge from the urethra is caused by chronic seminal vesiculitis. There is more or less constant pain about the urethra, perineum, bladder, testicles, rectum; or it may radiate to the back, abdomen, inguinal regions, or the thighs. By rectal examination the vesicles will be found full and tender and there may be inflammatory induration around them. In acute cases there is frequent straining micturition, and in addition to the above pains, pain is referred to the hip, the sacro-iliac joints and down the outer side of the thigh. The symptoms may simulate appendicitis. There may be priapism and emissions of blood-stained semen. The treatment consists of rest in bed with the pelvis raised, hot rectal irrigations, hot sitz baths, morphine and belladonna suppositories. Salicylate of soda in 10 grain doses should be given every four hours and if any urethral treatment is continued it must be very mild. As the disease becomes chronic, the vesicles should be stripped by massage two or three times weekly, with full bladder.

The treatment of acute prostatitis is much the same. If

the pus forms a swelling between the prostate and rectum it should be let out through a semi-lunar incision in front of the anus, gradually deepened between the rectum and bladder, and good drainage provided. If the pus bursts into the urethra the cavity of the abscess should be made to close as soon as possible, to prevent chronic suppuration and the formation of phosphatic calculi. When the degree of tenderness will allow it, the prostate should be massaged to empty the cavity of pus, and the patient directed to pass water; the urethra and bladder are then irrigated with an antiseptic solution. This is repeated twice daily.

In chronic cases massage followed by irrigation are useful, also rectal injections of hot salt water. The bowels should be kept regular, the diet bland, the general health should be kept as good as possible. The treatment naturally takes a good deal of time and perseverance.

The treatment of gonorrheal rheumatism is by daily rectal injections of 10 cc. of polyvalent anti-streptococcus serum and the treatment of the inflamed joints, tendon sheaths, and so forth, by Bier's method of passive hyperemia, the time occupied being up to 20 hours daily. Also massage and much earlier active treatment and passive movement than is often used, splints being discarded if possible, or only put on at night to relieve pain and secure sleep. Salicylate of soda or salol are useful, also quinine, mercury and potassium iodide. Scott's ointment with belladonna should be rubbed into the affected parts when not too tender, the rubbing always being in an upward direction, and injections of thiosinamine used to prevent ankylosis. When the condition is more chronic the parts should be treated as described during the day, and at night wrapped up in a piece of flannel soaked in a saturated solution of common salt, covered with a water-proof protective, and the patient encouraged to use the limb as much and as early as possible.

Dr. T. W. Parkinson remarked that the aspect of the question which concerned him most, but which was only partially touched upon, was prevention. By devoting so much attention to the treatment of gonorrhoea he thought that the medical profession was on the wrong lines. Great

efforts should be directed to preventing the disease. He differed from the remark which had been made that there would be very little progress made in the prevention of the disease. If the profession were to take the matter up in earnest, a large reduction in the amount of gonorrhoea in the country would be affected, and in that way there would be a great diminution in the number of inmates of hospitals, and the poor-rate would be reduced, because a large number of people were incapacitated through having gonorrhoea. Men had acquired gonorrhoea, and for months afterwards had been practically useless. There was little doubt that if it had not been for people with misguided ideas, there would have been legislation on the subject before now. It reminded him very much of what had been done for consumption by means of sanatoria all over the country, to take in and to treat isolated patients instead of making an effort to prevent or lessen the chance of occurrence. In regard to treatment, he was sorry that Mr. Pardoe had referred very briefly to rest in treatment. By rest, many of the unfortunate sequelae, such as orchitis, were prevented. Failing that, there were other precautions which were sometimes omitted. If the patient had to walk about during his attack, it was very important that he should be braced up; he should have suspenders for his testicles, and should wear bathing drawers to prevent the penis working about much during walking. These precautions and rest should play a far greater part in the treatment of gonorrhoea than they did at present. His object in speaking had been to emphasize the fact that in his opinion, efforts were directed at the wrong end of the subject, and that particular attempts should be made to lessen the incidence of the disease in the community.

The Chairman explained that he did not mean in his remarks that he thought the medical profession should keep quiet on the matter (as a class he thought that medical men were far too quiet on the subject), but he felt that prophylaxis was rather too large a subject to discuss that evening. He desired to ask Mr. Pardoe whether he had discarded the syringe altogether in the treatment of the disease. Was the medical man to advise his patient to throw his syringe in the

fire? Did Mr. Pardoe consider continuous urethral irrigation to have entirely superseded the syringe? For himself he favoured the copious irrigation method preferably to the syringe.

Dr. J. M. A. Costello, Galway, said that treatment did not concern so much acute gonorrhoea as chronic. Its use in acute gonorrhoea, indeed, had been more or less disastrous. At the same time there were also some disastrous results from its use in chronic gonorrhoea. Very good results in chronic gonorrhoea had also been achieved from its use. A gentlemen went on his holiday and came back with a marked attack of gonorrhoea, and it developed into a chronic condition, so that life was a misery. He was also very much depressed and neurasthenic and regarded life as not worth living. He applied to a medical man to treat him, and that gentlemen made unsuccessful attempts at local treatment. Then he was put under vaccine, stipulating that, while vaccine treatment was being carried out local treatment should be applied also. After the first injection, no very good result followed. A week later another injection was given, and, although the discharge was not lessened very much, the patient said he felt better than he had been for a considerable time. The medical man encouraged him, and a week later gave him another injection. That cleared away all the discharge, and, on examination there were very few gonococci in it. A fourth injection was given, and all the discharge stopped. The case was not his own, but he knew of it, and thought it might be interesting to the members to hear of it.

Mr. Redmond Roche said he recently saw gonorrhoea occurring in a boy age 7 years. Such cases of acute gonorrhoea were comparatively rare, and, therefore, he thought a statement about it might be of interest. It was not clear how the child contracted the malady. There was a young servant in the house under suspicion, and though there was no history of immediate sexual contact, it was very likely that, owing to want of proper cleanliness, the child had acute gonorrhoea with acute paraphimosis. He was called to see the patient in that condition with the view of adopting

surgical measures to relieve the paraphimosis, and he did a complete circumcision. It illustrated the point made by the Chairman in advocating in as general a way as possible circumcision in the earliest years. If that boy had been circumcised—he had a particularly long prepuce—he would have stood a chance of escaping the disease. He had gonorrhoea in a very acute form, and it ran the usual course. He heard from the doctor that after seven weeks of alkaline and salol treatment he was not completely well. It seemed to him that the members of the Society would still be in a great deal of doubt as to what the line of treatment for active gonorrhoea should be in cases which resisted the ordinary simple measures. On the one hand they had heard from Mr. Pardoe words of admonition as to the danger of rushing in with active measures for fear of setting up conditions which were worse than the original state of things for which the treatment was adopted. The other side of the picture was presented by Mr. Baldwin, who advocated in a very hopeful way that active line of treatment in the great majority of cases which did not yield readily to expectant or milder measures of treatment. It would be a great pity if practitioners were deterred from using energetic measures which were likely to lead to good results in cases which were resistant to medical treatment, by reason of the fear of a more dangerous condition being set up. He thought that line of argument would be valid against almost any justifiable operative treatment for most ordinary diseases, because of the possibility that it might be followed by severe septic conditions. Therefore, he thought, practitioners should not allow that fear to unduly deter them from using strong methods in cases which seemed to need them. On the other hand, the active measures which were known to be necessary required more skill than the average practitioner, who did not deal frequently with such cases, could command, and he thought much care and discretion should be exercised in using such measures until they had ample opportunity of seeing them employed, if not employing them themselves. Reference has been made to trying to prevent gonorrhoea by legislative measures or by circumcision; he also thought

it should be impressed upon patients when they had contracted the disease the necessity for treating it with great care and attention. The laity seemed to have the idea which the medical student of old had, who, when asked how he treated gonorrhoea, replied: "I treat it with the greatest contempt." Certainly many members of the laity treated it as a very trivial incident, thinking that a few bottles of medicine procured at the chemists was all that the case called for. And when such patients consulted a doctor, the doctor did not always attach the significance to the disease which he should.

Original Abstracts and Translations

TUBERCULOUS DISEASE OF THE TESTIS AND EPIDIDYMIS.

ONE talks of tuberculous disease of the testis as if it were common for that organ to be primarily attacked by this disease. As a matter of fact, the testis is nearly always involved secondarily to the epididymis; and it is from here that the mischief spreads to the body of the testis and to other parts of the genital apparatus, more or less frequently to the prostate, and less commonly, perhaps, to the bladder. Like most forms of surgical tuberculosis, it must be regarded as a hæmic infection, in this case by means of the large branch of the spermatic artery which is given off to supply the epididymis. Nor is it unreasonable to expect that tuberculosis should manifest itself here commonly, because the terminal vessels of this artery are small and tortuous, and it is believed that surgical tuberculosis is the result of bacilli becoming, so to speak, impacted in small arteries and retained there as an embolus. As soon as this occurs they are able to start their deadly campaign upon the adjacent tissues. It is true that the epididymis itself is attacked in some cases secondarily to disease in other parts of the urinary apparatus, such as the kidney or the bladder. The writer must not be understood to imply, therefore, that the epididymis is necessarily the first part of the genital apparatus to be infected. This is, of course, not the case. The point is that when the body of the testis is involved, it will be almost invariably found that the epididymis shows more advanced signs of the disease.

Attempts have been made to prove that infection is, at any rate in some cases, the result of coitus with a woman suffering from tuberculous disease of the uterus or its ap-

pendages. Without going so far as to say that this absolutely cannot happen, it may be safely asserted that it cannot be a common event, if for no other reason than that tuberculosis of the female genital organs is comparatively rare, and although tuberculosis is an infective granuloma, and thus allied to syphilis, the method of infection is essentially different in the two diseases. Acquired syphilis is, as is known, the result of inoculation through an abraded surface, and many surgeons have been unfortunate enough to contract the disease in this way during the course of an operation. But this rarely, if ever, happens in the case of tuberculosis. It is true that there is a condition known as the verruca necrogenica or post-mortem porter's wart, but even in this case its interest lies mainly in its extreme rarity. This mode of causation may therefore be disregarded.

As in all tuberculosis lesions, injury may play an important part in predisposing to the disease. It is to be supposed that the great majority of individuals existing under modern social conditions possess tubercle bacilli in their bloodstream, which are inert as long as the normal vitality of the patient is sustained. But let the resistance of any organ become even momentarily impaired, as it is, for instance, by an injury: and what is the result? The bacilli are able to exert their evil influence upon the damaged tissues, and the outcome is—disease. For disease is the expression of a want of equilibrium between the vitality of the tissues and the virulence of the micro-organism. And this is true, not only of tubercle but of every other infective process. There is a case recorded which can only be explained on this hypothesis of two medical students who were attending a course of instruction at a fever hospital. They had gone through nearly the whole course without being infected by any of the diseases with which they came in contact. But one day they went round the wards after having played an exhausting game of tennis, and both of them contracted scarlet fever. Lobar pneumonia is another case in point. We all of us possess in our pharynx, according to the bacteriologists, the diplococcus pneumoniae, but the micro-organism is unable to harm us as long as our general health

is unimpaired. But if we are exposed to draughts and "catch a chill," as the lay phrase has it, we run the risk of incurring the disease. It is not the chill which causes the symptoms, but it predisposes us to infection by an ever-present enemy. And there is another point of interest about the relation of antecedent injury to the subsequent tuberculosis. It is often slight, so slight, in fact, as to have been ignored at the time by the patient as a matter of no moment, and only recalled subsequently. How are we to explain this? Volkmann has suggested that severe injuries are less likely to determine an outbreak of tuberculosis, because the reaction which they cause is sufficient to overcome the activity of the tubercle bacillus. The conclusion is, therefore, that tuberculosis of the testis is nearly always secondary to disease of the epididymis, and that it is a hæmic infection, often the result of some slight antecedent injury. Less commonly it follows on similar disease of some other part of the genito-urinary tract, for instance, the kidney.

The pathology of the condition does not differ from that of tuberculosis elsewhere. The disease starts as an isolated nodule in the epididymis, generally in the head, this being the part where the spermatic artery breaks up into its branches. This nodule enlarges, or there may originally be several small nodules, which enlarge until the margins are in contact, when they coalesce to form one focus. Sooner or later the centre caseates, so that a tuberculous abscess is formed. Its contents consist of the broken-down connective tissue cells which formed the nodule. Caseation is supposed to occur as the result of two factors: (i) the virulence of the toxins secreted by the tubercle bacilli, and (ii) the avascularity of the tissue. In the course of time the testis is involved by direct extension of the process, and an exactly similar state of affairs is found in that organ. One or more abscesses may form in the body of the testis, and these eventually make their way to the surface, involving the skin of the scrotum, and discharging their contents externally. The tunica vaginalis is generally infected as well, so that there may be co-existent hydrocele, as in all diseases of the body of the testis, or the tunica may even contain pus.

Clinically tuberculous disease of the testis may be divided into two varieties, the acute and the chronic.

The acute form sometimes known as "galloping phthisis of the testis," is the less common, and it will be discussed first. It generally starts with sudden pain in the scrotum. In many cases no apparent cause can be found, but others follow on an attack of gonorrhœal epididymitis; and, in fact, early acute tuberculosis of the testis resembles gonorrhœal epididymitis so closely that it is often difficult, or even impossible, to say definitely at what period in these cases one disease passes into the other. Very soon after the onset of pain the testis is found to be swollen and to have an irregular nodular outline, and if the case be watched from the beginning a fluctuating spot will be found in the course of a very few weeks, sometimes as few as two or three. The early formation of abscess is one of the most characteristic signs of acute tuberculosis of the testis. The accessory organs are attacked with astonishing rapidity, vas deferens, vesiculæ seminales, and even the prostate, and abscess formation may occur in any or all of these. Lastly, the condition is sometimes associated with a urethral discharge, which is not like a gonorrhœal discharge, but consists of thin sero-purulent material. It is explained as being probably due to tuberculous disease of the versiculæ seminales or of the prostate. Tubercle bacilli can nearly always be found in it, if it is examined bacteriologically. As soon as the diagnosis of acute tuberculosis of the testis has been definitely made, the testis should be removed at the earliest possible opportunity with as much of the cord as is possible. No palliative measures hold out any hope of success. The very nature of the process is proof that the patient has no resistance to the tubercle bacillus, and delay will only result in the whole genital apparatus becoming progressively involved.

In the chronic form, which is also the usual one, the onset is insidious. An observant patient will possibly notice the presence of one or more nodular lumps in the epididymis before his attention is called to his condition by any definite symptom. At first these are quite painless, but later, when the whole epididymis and possibly parts of the testis are

involved, pain of a dragging character is often complained of. This is probably partly due to the disease itself and partly to the increased weight of the organ. As in all conditions in which the testis is diseased, there may be, and probably is, some degree of hydrocele of the tunica vaginalis; it is rarely a large one, but simply a serous effusion as the result of the reaction of the tissues to the disease. It is exactly analogous to the pleural effusion, which often accompanies, or apparently precedes, pulmonary tuberculosis. It is now common knowledge that when an unexplained pleural effusion is found it is nearly always due to pulmonary tuberculosis, but the early diagnosis of this disease is so difficult a matter that the lesion, although present, does not give rise to sufficient physical signs to enable it to be detected. This is not the case in the testis, because by the time a hydrocele has made its appearance there is at any rate definite disease of the epididymis; but it should be remembered that the hydrocele, though only a slight one, may be sufficient to obscure the exact condition of affairs in the body of the testis. Sooner or later the hard nodules caseate and involve the skin over them. The length of time which occurs before this takes place is most variable. In the acute form we have seen that it may occur in a few weeks, but in the chronic as much as many months, or even a year may elapse. One or more fistulæ result, according to the number of abscesses which have been formed. Abscess formation is usually associated with increased pain, but this is relieved when the pus comes to the surface, just as it is in an acute inflammatory process. The after-history of an untreated case varies. In most cases the spontaneous opening which has been made by nature is insufficient to allow of the discharge of all the contents of the abscess, and, if the surgeon does not interfere, pus is continually discharged in small quantities, or the opening may heal over temporarily until the tension inside is again increased, when another eruption of pus takes place. In some cases, but unfortunately in very few, the initial evacuation of the abscess seems to enable the tissues to exert their natural bactericidal power, and the abscess cavity is cured by connective tissue reaction and subsequent fibrosis.

Finally, as in the acute variety, the more distant parts of

the genital apparatus may be involved, and these cases should always be examined by the rectum to see if the prostate is diseased. If it is, it will be felt to be enlarged, distinctly differentiated from the surrounding structures, and to present to the examining finger either hard nodules or a soft fluctuating spot. In the former case no surgical procedures are practicable, but if there be a prostatic abscess it should be opened by means of a transverse perineal incision, through which the urethra is separated from the rectum, until the abscess cavity is reached and the pus can be evacuated.

In some cases both testes are involved in the disease, and when this occurs it generally happens that the second one is attacked a considerable time after the other, in some cases so long after that the disease of the second testis must be regarded as a new and distinct outbreak of tuberculosis rather than as a local extension of the original disease. The writer has seen two cases in which the remaining testicle became tuberculous several years after the first one, and in spite of the fact that castration was performed at an early stage; in fact, in one case it was removed immediately because it was supposed to be affected with malignant disease.

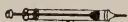


DR. R. H. HERBST, of Chicago (*J. A. M. A.*, May 23, 1908), has treated cases of acute, subacute and chronic gonorrheal infection and chronic gonorrheal orthritis with anti-gonococcic serum and his conclusions are as follows:

First, the serum has absolutely no effect on acute gonorrheal infections, whether they exist in the lower urinary tract or in any other part of the body. Second, its value in subacute and chronic cases is very doubtful, although there were a few isolated cases in which the results were somewhat better than we see with local treatment. Third, the value of this serum in the treatment of chronic gonorrheal joints is without question. In the past, these painful joints accompanying and following gonorrhea have been most resistant to treatment, both local and general, but the author feels that we now have a remedy which will give rapid and permanent relief to the sufferers from this common complaint.

INFLUENCE OF MASSAGE OF THE RENAL REGION UPON THE URINE IN NEPHRITIS. Callisto, following in the footsteps of Menge, Schreiber and others, who showed that massage of the kidney could produce a transient albuminuria, investigated the question as to whether massage of the renal region did not produce marked changes in the composition of the urine. The region of each kidney was massaged for fifteen minutes. After having made sure that this procedure does not cause any changes in the urine of healthy persons, the author studied its effects in six patients with various renal affections.

He found that in acute parenchymatous nephritis massage produced an increase in the albuminuria, which was occasionally marked, and also caused a diminution in the amount of water and of chlorides eliminated. On the other hand, in interstitial nephritis there was a diminution in the amount of albumin, while the chlorides and the total amount of urine were increased after massage. In the sediment massage produces a noteworthy increase in the number of cells and casts in both parenchymatous and interstitial nephritis. It may be said, therefore, that massage of the kidney produces some improvement in the excretion of the urine in interstitial nephritis. This improvement may be due to a congestion which massage produces in a kidney. The author asks if this does not justify us in using massage as a method of treatment in interstitial nephritis. On the other hand, in parenchymatous nephritis massage seems to be injurious, because it decreases the amount of urine and increases the albuminuria.—*La Tribune Médicale*.



TUBERCULOUS CYSTITIS. Tuberculous cystitis requires prompt treatment on account of its gravity. Medical treatment should be first tried and addressed to the tuberculous diathesis—country air, rest, cod-liver oil, creosote, cacodylate of soda; a good formula is the following:

Creosote, 1 drop.

Iodoform, 1-3rd gr.

Arsenate of soda, 1-50th gr.

Ext. of opium, 1-5th gr.

For one pill. Three daily.

As local treatment, instillations of iodoform, 5 per cent.; guaiacol, 1—20; corrosive sublimate, 1—5,000 to 1—1,000; which Guyon considers the best treatment of tuberculous cystitis. Nitrate of silver should not be employed in the first stage of the disease, as it might provoke congestion of mucous membrane, and even hematuria. But in the second stage, or that of secondary infection, instillation of a solution of nitrate of silver gives, according to Le Fur, excellent results. Irrigation of the bladder is always counter-indicated on account of the extreme sensitiveness of the mucous membrane. When the general and local treatment fail, recourse might be had to surgical treatment: The bladder incised in the supra-pubic region, and the granulations removed by the curette and the superficial ulcerations cauterised with the thermo-cautery.

In cases where the tuberculous ulcerations are consecutive to tuberculosis of a kidney, the removal of this organ completely cured the vesical disease, proving the intimate relation between renal and vesical tuberculosis.—*Med. Press and Circ.*



QUININE IN SYPHILIS. Dr. Leuzmann of Duisburg (the Hospital) has published the results in a series of cases of syphilis treated by a new method. This method consists essentially in bringing the patient rapidly under the influence of quinine. Intravenous injections of 0.5 to 0.8 gram of quinine hydro-chloride are given, the salt being dissolved in normal saline. Four c.c. of this solution, which has been previously warmed, are injected into the veins of the arm or leg. Where very stout persons in whom such intravenous injections are exceedingly difficult to carry out, intramuscular or even subcutaneous injections may be given. It is advisable to commence the treatment with a relatively small dose—usually 0.3 gram (5 grs.)—and to give one injection per day. After four days' treatment injections are only given every second and later every fourth day. Fourteen to twenty injections are usually sufficient. The results obtained have been exceedingly encouraging. More especially striking has been the rapid improvement leading to complete cure which the author was able to obtain in several serious cases of so-called malignant syphilis. Good results were also obtained in cases of secondary and tertiary syphilis and in primary chancres.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M. D., Editor.

VOL. IV.

SEPTEMBER, 1908.

No 9.

Contributed by the Author to The American Journal of Urology.

RENAL DISEASE DURING PREGNANCY, LABOR AND POSTPARTUM.

By DR. B. BAUMANN, Munich, Germany.

ALBUMINURIA as a *constant* symptom, in itself justifies making the diagnosis of renal disease in many cases, and, of course, beside this, certain microscopic elements in the urine are of greatest diagnostic value. To these two important elements a third is to be added, namely, edema, which, not infrequently, is the first symptom indicating the presence of some renal lesion. The occurrence of albuminuria was overlooked by Bright in cases of pregnancy, but was described by Rayer. Formerly, the presence of albumin was considered an absolute indication of renal trouble, but more recent researches have proven that the excretion of albumin in the urine is not always pathological and may be found in perfectly healthy subjects. It may be that those cases of albuminuria occurring during pregnancy and labor which are not complicated by any other symptom of renal disease, may be placed under the head of physiological albuminuria, and it has been pointed out by von Leube that, if no other renal symptoms are found, such as increased arterial tension, the commencement of cardiac hypertrophy or changes in the fundus of the eye, no casts or other abnormal elements in the urine, it is then justifiable to diagnose the case as a physiological albuminuria.

It is quite different when albuminuria is accompanied by other nephritic manifestations, as, for example, casts and edema. In this case, the diagnosis of renal disease may be made. If a sharp distinction between the albuminuria of pregnancy and Leyden's gestation kidney cannot be made, it is still more difficult to differentiate with certainty a nephritis

of pregnancy, and the so-called kidney of pregnancy. The latter is characterized by the absence of general disturbances, and in Fischer's opinion, the occurrence of albuminuria and casts in moderate amount during the latter weeks of pregnancy and their rapid disappearance during the first few days following labor, are diagnostic of the condition known as the "kidney of pregnancy."

The presence of many leucocytes, with a relatively small amount of albumin, (0.05%) as well as the presence of numerous hyalin and a few granular casts and blood cells, is as characteristic of this condition as is the absence of general symptoms. Rarely is there any marked and general edema. If the granular casts predominate and the edema becomes general, it is significant of nephritis.

In nephritis, the intensity of the disease may be measured by the amount of albumin excreted and casts. Much blood in the urine indicates the acute form of nephritis; fat granules and fatty granular cells, free or attached to the casts, indicate fatty changes in the kidney and also chronic nephritis, especially when complicated with heart and retinal changes.

The question of the significance of renal affections before, during and after labor, both for the mother and child has been the source of much literature and many controversies. Beside the question of eclampsia, which is of the greatest importance to the life of both mother and child, much discussion has been raised in those cases of placental disease, premature interference with labor and death of the fetus. Here, as in the investigations concerning the frequency and etiology of albuminuria, opinions vary greatly. According to Winter, who reported three cases of premature detachment of the placenta, followed by death of the fetus, occurring in nephritis of pregnancy, Fehling believes that there is a connection between the renal disease and the placental changes. The ultimate outcome of renal disease during pregnancy, is sooner or later death to the fetus, this being the result of a decrease in the nutrition, because the normal tissue of the placenta, becoming filled with white infarcts does not supply the fetus with sufficient nourishment.

The teaching of infarction of the placenta, which Fehling considered was similar to infarction of the kidney, the result of a chemic necrosis, found many followers, while, on the other hand, much opposition was presented. Therefore, Wiedow put Fehling's teaching to test without, however, coming to any definite conclusions. That nephritis undoubtedly has an influence on the development and life of the fetus was proven by E. Cohn. He considered the tremendous mortality as partly due to the marked changes in the placenta and, according to his way of thinking, the renal changes were the cause.

Fehling, Wiedow and Cohn arrived at conclusions different from those arrived at by Meyer in his investigations. The latter authority claims that renal disease has no special influence on the death of the fetus in utero, and he states that a certain connection exists between renal disease and changes in the placenta. This relationship, however, does not seem to be of such unquestionable and prominent nature, because we know that the placenta may undergo the same changes when no albumin is present in the urine, a fact that is not at all of infrequent occurrence in practice. In another article Meyer states that renal albuminuria occurs during pregnancy without death to the fetus and without the occurrence of white infarcts; that death of the fetus (except from syphilis) can occur without renal albuminuria and without white infarcts; and lastly, even extensive white infarcts may occur without any albuminuria, with or without death of the fetus. Therefore, contrary to Fehling, these facts do not justify him in attributing the changes arising in the kidneys to be the cause of the other two manifestations.

A few years after Meyer's paper appeared, Fehling wrote that after examination of the abundant material at his clinic, he was merely strengthened in his belief of the actual relationship between kidney disease and infarcts of the placenta and death of the fetus. H. Fischer also agrees with Fehling and mentions nephritis next to syphilis as the most frequent cause of miscarriage. On the other hand, the conditions mentioned by Fischer differed so much from those observations quoted in literature, up to that time that A. Trautenroth published

his results, based on his researches at the Marbourg Obstetrical Clinic. In a more recent and extensive article, O. Fellner treats albuminuria, nephritis, gravidarum and eclampsia as identical diseases from the etiological viewpoint and the results gathered from the Vienna clinic generally substantiate the opinions of the earlier writers, whereas in other cases they differ from them.

It is my object in this paper to give the results of my investigations taken from the material at the Obstetrical and Gynecological Clinic at Munich during the period of five years. For this purpose I had placed at my disposal 6,093 obstetric records, including the puerperal stage and the condition of the child. The examinations of the urine for albumin were done by the Koch ferro-cyanide of potassium—acetic acid and Heller's ring test, while the sediment was obtained by the centrifugal apparatus. These tests were made assuming an etiological relationship between albuminuria, nephritis and eclampsia. All the cases of eclampsia, except two, where urine could be obtained, even with a catheter, were accompanied by a more or less marked nephritic symptomatology. Out of the 6,093 births, 101 cases with albumin in the urine were reported, accompanied at the same time by other manifestations of renal disease. Added to the 101 cases there were 41 others, in which a trace of albumin was found during the first or second stages of labor, while both before and afterwards, there was no trace of albumin or any other symptoms. These 41 cases, probably belong to the class of so-called physiological albuminuria, and, therefore, do not pertain to the question under discussion in this paper, so that I shall deal merely with the above-mentioned 101 cases.

In judging the frequency of albuminuria during pregnancy and labor, there are many difficulties. Firstly, many women come to the clinic when labor has begun, so that the presence of albumin cannot be definitely determined. Secondly, urine examinations were usually made and reported upon only in those cases where other symptoms were present. Thirdly, in some suspicious cases, no urine could be obtained either by catheter, or, when it could be, the amount was in-

sufficient for examination, especially in the cases of eclampsia. Consequently, for these reasons the figures here given can only be considered as approximate. For the same reasons, also, as will be seen later, the differentiation between the albuminuria of pregnancy and that of labor cannot be strictly carried out with the material at my disposal. Out of the 6,093 women, 101 presented albuminuria, in other words, 1.06%. If, to these be added the 41 cases of albuminuria found in traces during the first and second stage of labor, the percentage would amount to almost 2.33%. As the systematic examinations of other writers show, the relationship of the percentage is very variable. Fischer gives the highest, namely, 90.2%, thus agreeing more with other statements that pregnancy is always accompanied by albuminuria. According to Trautenroth, albuminuria occurs in from 45 to 50%, while Winkel found albuminuria present in about 10% of pregnant women and about 20% during labor. Ingerslev estimates albuminuria of pregnancy at about 4.8% and albuminuria during labor at 32%, while for L. Meyer the relationship is 3.4% to 25%. My figures are very low compared with the above mentioned writers, and agree more with those obtained by Fellner, who found only 202 instances of albuminuria, out of a total of 33,881 labors, in other words, 0.7%. The similarity with Fellner's findings is probably due to the fact that he also used the labor reports in his investigations and experienced the same difficulties as myself. However, taking collectively the various results obtained by different writers, it would appear that the albuminuria of labor is decidedly more frequent than that of pregnancy, and, if one takes into consideration the 41 cases referred to in this paper, this fact would seem again verified.

Among the 101 women with albuminuria, 62 were primiparae and 32 were multiparous, while the number of pregnancies was not given in the remaining six cases. Consequently, about 66% of the cases were primiparae. Nevertheless primiparae predominate, also in cases of labor without pathological conditions. Meyer and Trautenroth consider that the larger number of primiparae as the reason

for the high number of instances of the albuminuria of labor, while Ingerslev considers it due to the low position of the head in primiparae.

The question as to what time during pregnancy albuminuria tends to occur may be answered that the albumin is almost always found at the end of the second half of gestation. In one case of abortion occurring during the third month, the causative factor of both the miscarriage and the albuminuria was found to be a florid pulmonary tuberculosis. The earliest examination of the urine in my cases was made at the time one woman was discharged during the seventh month of pregnancy, having presented albuminuria for about four weeks; she left the clinic still uncured. In another case where albuminuria was observed during a week in the ninth month of pregnancy, the woman was discharged as cured before labor occurred. In many of the other cases, observation showed that the albumin occurred during the last fourteen days of pregnancy, and in almost all the cases, on the day of the labor or the day before, because many of these patients would wait until the last minute and enter the clinic after the commencement of labor.

Meyer states that albuminuria occurred from the twentieth week of pregnancy on, with comparatively the same frequency, that is, not necessarily at the end of pregnancy. On the other hand, Trautenroth agrees with my findings, that, from the twenty-sixth week only slight albuminuria is met with in about 45% of the cases, while, during the last ten days of pregnancy, it occurs more frequently and in greater amounts.

The amount of albumin varies greatly, and, in one of my cases, it reached 16%. Fellner found 35% in one of his cases. In 8 of my cases Esbach's test showed 1% and over. Usually, it is on the day of the labor itself, either shortly before or after, that excretion of albumin occurs. In only 1 of my cases was the largest amount of albumin, namely 14%, found two weeks before labor, with a gradual decrease down to 4% on the fourth day after labor. From this, the conclusion may be drawn that the act of labor influences the albuminuria, and that, besides, there is a differ-

ence in the degree of albuminuria in the first and second period of labor.

The general increase in the amount of albumin before labor is usually followed by a similar gradual decrease during the postpartum. Forty-four patients were discharged without albumin in the urine, while in 24, traces still remained. In 13 patients there was still albumin when they were discharged, while 6 were sent to other hospitals on account of the complications present. In 1 case the record gives no information. Out of 44 cases which fully recovered, the urine became free from albumin in 1 case at the beginning of the third week after labor; in 24 cases it disappeared during the second week, while in 19 at the end of the first week. Most of the patients who were discharged with still more or less albumin, left at the end of the first week postpartum, against the advice of the attending physicians, but some of them entered other hospitals. Only in two cases the albuminuria had not disappeared at the end of the third or fourth week. Consequently, as regards the course of the albuminuria, it may be said that it usually disappears during the first or second week, occasionally assuming a chronic course.

If we take into consideration the other symptoms, which would lead to the suspicion of some renal affection, the first is edema. Often, it is this symptom which causes one to examine the urine. The question at once arises whether there is a relationship between the edema and the albuminuria. Edema and a varicose condition of the veins of the lower limbs and labia occur during pregnancy without albuminuria, and, consequently, in this case, it is independent of any changes in the kidney. If, however, the edema extends to other parts of the body or becomes generalized, one can be sure that some renal trouble is present. Fellner could not verify a relationship between edema and the presence of albumin, because on the one hand, he found very marked edema with traces of albumin, while, on the other, patients presented no edema, but a large amount of albumin. Leyden, on the other hand, came to the conclusion that, generally speaking, the edema first appeared while the albumi-

nuria occurred later, so that he came to the conclusion that there is a relationship between edema and albuminuria. For this reason, the following three questions must be put: (1) How often is albuminuria accompanied by edema? (2) When, during pregnancy, does the edema appear? (3) Does the amount of edema go hand in hand with the excretion of albumin?

I find that in 16 of my cases, there was no edema whatsoever. A definite history in this respect is lacking in 21 of them. Again, in 64 cases, in other words, 63.4% the albuminuria was accompanied by edema, in 36 cases partially generalized, especially in the lower extremities and labia (28 times). The statements made by the patients differ very greatly as to the first appearance of the edema. Still, I am unable to find a single instance in which it occurred during the first half of pregnancy. Usually, it is the end of the second half of pregnancy, a few months to several days before labor. In some patients the edema did not occur until after labor, during the postpartum. With few exceptions (3 cases), the edema began in the lower extremities, or on the vulva, and later on, extended to other portions of the body or became more marked, especially during the last few days before labor took place. On this point, consequently, as to the course of albuminuria, most authorities agree. If, upon the first appearance of the edema, the excretion of albumin commenced, I must confess that I cannot make any comments as far as my cases are concerned. At any rate, when edema did occur, it had already been present before the albuminuria took place. There is no case among my own where there was complete absence of albumin in which edema appeared later. The gradual development of the edema before labor could always be demonstrated, nevertheless in none of these cases, could I find any indication of a simultaneous increase of the excretion of albumin. In most instances where the edema increased after labor, the amount of albumin did not increase in the same ratio. Only in one case was the increase in the edema during the postpartum accompanied by an increased excretion of albumin. On the other hand, another case where the edema increased

greatly during the puerperal stage, no increase in the albuminuria was detected, while in another case, the albumin diminished in amount, although the edema became more marked. If one may judge by my material, a relationship between the edema and the albuminuria can only be found during the period that they occur.

Another far more important symptom of albuminuria is the presence of various forms of casts in the urine. L. Meyer found that out of 1,138 cases examined, there were about as many cases of albuminuria with casts (11.9%) as without casts (12.4%). H. Fischer, who, in his examinations, laid special stress on the sediment, speaks of a rare occurrence of hyalin, granular and epithelial casts, as well as red blood cells, during the second half of pregnancy. On the other hand, he states that there is a frequent occurrence of bladder and renal pelvis epithelia and a regular increase of leucocytes, either isolated or clinging to the casts. On the contrary, the first half of pregnancy never shows casts in the urine. Out of my 110 cases of albuminuria, casts were found in 50, 19 times no casts could be detected, while, in the remaining 32 cases the report is not definite. Of these 50 cases with casts, 33 were primiparae and 13 multiparae, while in 4 others the number of pregnancies is not stated. We, therefore, see that albuminuria alone, as well as albuminuria with casts occurs principally in primipara, thus representing about 66% of my cases. L. Meyer also found a predominance of cases among primiparae. Usually, the casts occurred during the progress of the albuminuria and disappeared along with it. Of the 24 patients above mentioned, who were discharged with traces of albumin still in the urine, only 4 had casts and these were few in number and degenerating. Among the 13 patients who, when discharged, were still passing a good deal of albumin, 5 presented a marked cylindruria, in 4 there were no casts, while in the remaining 4 the record in this respect is lacking.

The granular cast is most frequently met with and was only wanting in 5 out of 50 cases. Secondly, the hyalin casts are present, many times being found with the granular type. Epithelial casts are less common and are usually accom-

panied by much free epithelium. In only 6 cases were waxy casts found, some with hyalin, but mostly surrounding numerous degenerating granular casts.

The most frequent morphologic elements occurring with casts are the epithelia. In some cases they appeared in large quantities, some with epithelial casts, others isolated. Sometimes they were found undergoing fatty degeneration, or dissolved in the cell detritus. The forms of epithelium vary. When they originate from the kidney, they can only then be determined when they occur with epithelial casts. Furthermore, a definite differentiation between the epithelium of the kidney and the excretory urinary passages (renal pelvis, ureter and bladder) is not possible. Leucocytes are found somewhat less sparsely, at other times they appear in large clusters. More infrequently, red blood corpuscles can be detected.

Among the 19 cases of albuminuria without casts, in 3 there was no sediment. In the urine of the 16 other women leucocytes were found in varying quantity 15 times, twice being accompanied by many pus corpuscles. With the exception of 3 cases, microscopical examination showed the presence of epithelium of various types, in 2 cases it was of the flattened type. Only once was brickdust sediment found along with uric acid crystals. Red blood corpuscles with leucocytes were found in 3 cases. If we are to be guided by these figures, it may be concluded that there is almost always an occurrence of epithelium and leucocytes in albuminuria with casts, as well as when casts are absent.

A more rare accompaniment of albuminuria is sugar, either during pregnancy or labor. Biot was the first to refer to glycosuria, which Brücke considers as merely an increase in the sugar normally found in the urine. Others, among whom we may mention Hempel, also accounts for the glycosuria as a resorption diabetes, which originates from the secretions of the mammary gland. Contrary to this, A. Payer taught that the limit of assimilation of grape sugar during pregnancy is diminished, so that one is dealing with an alimentary glycosuria. Referring to my cases, sugar was demonstrated in 17; 9 times before labor, 8 times during

labor, while in 2 cases it continued through pregnancy and the postpartum, I am unable to find any record as to the amount of sugar excreted. Only this much can be demonstrated, namely, that glycosuria occurs only in those cases of albuminuria accompanied by the presence of casts. Aceton, in large amounts, was found in 11 cases, 6 times during pregnancy and 5 times during labor. For both, glycosuria and acetonuria, the rule is that they occur shortly before labor, they increase in amount and soon after disappear. Von Jaksch demonstrated some time ago that a small amount of aceton occurs in normal urine. No influence on the progress of labor could be found arising from the glycosuria and acetonuria.

With the appearance of edema in many cases, other symptoms were noticeable. Headache, insomnia, dizziness, nausea, vomiting and restlessness occurred. These are what may be termed slight uremic symptoms which can often be recognized, or, as prodromal symptoms of severe complications during the last few days of pregnancy. These complications may arise during or after labor, presenting the severest symptoms, such as eclampsia, uremic coma and amaurosis. For instance, in 4 of my cases, these uremic prodromal symptoms preceded the attack of eclampsia, accompanied with partial or generalized edema and albuminuria, with or without casts. The amount of urine is occasionally varied; in 1 case it was increased and in 1 other decreased. We thus see that in most cases with such uremic symptoms, the edema is severe, usually generalized and that the albuminuria in most cases is accompanied by casts in the urine. The uremic symptoms disappear after labor. In a great many cases, however, they are the forerunners of eclampsia. However, the latter may also occur suddenly without any warning, the convulsions coming on with loss of consciousness very rapidly.

Typical attacks of eclampsia occurred in 52 cases of mine. The records are indefinite in two cases; in 1 the uremic eclamptic attack was undoubtedly complicated with hysteria. We have, therefore, out of 6,093 births, a percentage of eclampsia representing 0.83%. These figures have only

a conditional value, because many patients came under observation only for the eclampsia, so that I am unable to come to any general conclusion relative to the relationship of albuminuria and eclampsia. According to Ingerslev this relationship may be clinically estimated as follows: (1) albuminuria is found during pregnancy sooner or later before the occurrence of the eclampsia; (2) simultaneously with the eclamptic attacks one will usually find a considerable amount of albuminuria, which was not present before; (3) before the convulsions in some cases no albuminuria was found, but after one, two or several attacks, the urine will contain albumin and this increases in direct relation to the number of attacks; (4) eclampsia occurs when the urine does not contain any albumin. However, this authority states that albumin is usually found in considerable amount and always accompanied by casts. In my 54 cases of eclampsia, albumin could be found, usually in considerable amounts. Only a few patients had traces of albumin in the urine and in not a single instance was it absent. On the other hand, Fellner found three cases of eclampsia without albumin. I was able to demonstrate that the amount of albumin excreted increased with the number of convulsions. In only 3 cases was albumin recorded as present before the commencement of the eclampsia. Almost all the other eclamptic patients were brought into the hospital during the attack, so that examination of the urine could only be made later. The amount of albumin was, without exception, large, varying from 5 to 15%. Undoubtedly it occurs most frequently during labor, this being the case in 22 of my patients, which equals 40.7%; in 16 cases the beginning of the eclampsia occurred during the latter part of pregnancy, the earliest attack being observed during the second week before labor. In 14 women it occurred during the postpartum. Fellner also found that the attacks occurred most frequently during labor, the percentage he gives being respectively 65.9% and 11%. He concludes by saying that, if one takes into consideration the frequent occurrence of labor before the end of pregnancy and the difficulty to afterwards determine whether or not the woman was in labor before the first at-

tack, it is most probable that eclampsia usually occurs during pregnancy. As in albuminuria, we also find that primiparae are the ones most usually affected. In my cases 32 were primiparae and 18 multiparae, this representing respectively 60% and 36%. In four patients the number of previous births was not recorded. This marked prevalence of eclampsia in primiparae has been generally recognized: Fellenerr found that it represented 75%, Schauta 82%, Goldberg 86.4%, Knapp 71%, so that my percentage, namely, 60% is the lowest. The age of the patient varies usually between the 20th to the 30th year. Under 20 and above 30 years of age it is about equally frequent. Only 1 of my patients having eclampsia was 40 years of age. Out of the 16 cases of eclampsia occurring during pregnancy, 10 were limited to this time, in 3 it continued during labor, while in 3 others it continued even after birth. Eclampsia during labor usually stops at the end of labor and in only a few cases do the convulsions continue afterwards. Eleven of these patients died (20%), 6 during the puerperium and 4 during pregnancy; the time of death in 1 is doubtful. Of these deaths, 3 were multiparae and 6 primiparae; in the remaining 2 the report is not clear. Recurrence of the eclampsia was noted 3 times. In 1 case the woman had had a miscarriage with eclampsia and 1 birth with eclampsia. During the third pregnancy, general edema appeared three days before labor, with profuse albuminuria with casts, and then a slight eclamptic attack took place. The second case was a patient 33 years of age who had had 4 miscarriages and 4 instrumental labors. During the last 2 she had had convulsions and was unconscious part of the time. Among the 9 cases of eclampsia during labor, one attack with loss of consciousness was observed. In another case the patient was pregnant for the second time. The first birth had been normal but she presented numerous eclamptic attacks during the postpartum. After a second pregnancy without any symptoms, eclampsia occurred during labor, but did not continue to the postpartum. The attacks were mild in all these three cases of recurrence.

Every case of continued excretion of albumin, which can

be absolutely demonstrated by ordinary methods, should be considered pathological. Albuminuria is the most frequent symptom of renal disease which alone may, in many cases, justify a positive diagnosis of renal disease. However, one must first determine whether the albuminuria is a renal one in which the albumin is secreted in the kidneys, or whether it is a pseudo-albuminuria, in which case the urine which is first secreted without albumin, becomes mixed with the albumin later, either in the kidney itself, or in the urinary tract. This differentiation is frequently very difficult to make, but it can usually be accomplished by the presence of bladder cells. Albuminuria, with a sediment in the urine, together with edema and other above mentioned symptoms, must supply the necessary means of making the diagnosis of the kind of renal affection present.

Among my 101 cases, I find 50 instances of albuminuria with casts, and these pointed towards the probability of a renal albuminuria. In one case, as the patient since her first birth had suffered from chronic catarrh of the bladder, a mixed albuminuria could be diagnosed with certainty, a conclusion which was also upheld by the large amount of albumin present. Albuminuria with casts indicates nephritis. Of the fifty cases of albumin with casts, seventeen presented marked generalized edema. Severe generalized edema is never found without serious kidney changes. Among the thirty-two cases where the report on the sediment is lacking, fourteen presented generalized edema and this occurred five times out of the nineteen cases of albuminuria without casts. Besides, as mentioned above, in those cases with casts, with the exception of five, the sediment consisted of numerous granular casts, and these cases generally presented a severe generalized edema. In six cases along with the granular casts, waxy casts were found and, as these are considered metamorphosis casts, they point towards a severe renal affection. The sixteen cases presenting epithelial casts in the urine also contained granular casts, and this was also true in twenty-three cases with hyalin casts. Therefore, in sixty-four patients, quite positively, and in five most probably, there was a nephritis of pregnancy.

Of these thirteen died. The anatomical diagnosis in the eight autopsies made, were respectively: acute parenchymatous nephritis, a marked pregnancy kidney, subacute parenchymatous nephritis, large yellow kidney (pregnancy kidney), acute hemorrhagic parenchymatous nephritis, acute parenchymatous degeneration of the kidney, parenchymatous nephritis, and chronic interstitial nephritis (granular kidney). With these diagnoses it is at once evident that, in one case where the anatomical diagnosis of pregnancy kidney was made, on account of the large amount of albumin and general edema, a nephritis of pregnancy was to be expected. Here, in the first place, it is noted that there was a serious cardiac lesion, namely, an uncompensated mitral insufficiency, for which the patient had several times been treated in hospitals. Edema and perhaps albuminuria as well, might have been influenced by the cardiac insufficiency. Secondly, it may be said, that, in formulating the anatomical and clinical diagnosis, no especial differentiation was apparently made between a pregnancy kidney and a nephritis of pregnancy, because in one case both terms are applied for one and the same condition. Thirdly, in the same records it is stated that this patient had been transferred to the hospital for nephritis, cardiac insufficiency, etc., and had died there. The limits between pregnancy kidney and nephritis can hardly be demonstrated. Therefore, Trautenroth in his examinations, contrary to Fischer, came to the conclusion that a classification of pregnancy kidney and the nephritis of pregnancy should be rejected. Fatty degeneration of the epithelium is unanimously admitted to be the most important of these kidney affections.

From the anatomical diagnoses it can be further seen that in seven out of eight cases the parenchymatous changes were of an acute nature and that only one subject presented chronic interstitial nephritis. Unfortunately, this case was complicated with eclampsia and it was impossible to make an examination of the urine, so that the conclusions relative to the relation of the casts and the other urinary elements cannot be drawn. The history of the case also throws no light on the duration and the symptoms of the chronic renal

disease. The anatomical changes found in the kidneys in the other cases were of an acute or chronic nature. An acute or subacute course was also noted in those cases which were not fatal. Hofmier, accordingly, has distinguished two kinds of pregnancy nephritis, namely, one running an acute course with a favorable prognosis and another with a more chronic course, usually ending in acute nephritis. There are also, as in the case of the albuminuria already referred to, those running a protracted course. In these cases we find only a slight change in the urinary sediment; the granular and hyalin casts increase in number and to be particularly noted is the fact that waxy casts appear along with much free fat. I must confine myself to Hofmeier's statement that: "On the one hand it is very difficult to obtain a reliable history as to the progress in these cases, when this point is not especially considered, while on the other hand the patients who have been confined, if no other puerperal processes develop, are often discharged from the tenth to the twelfth day, so that the observations could not be continued." For this reason it is quite difficult to tell what cases of pregnancy nephritis develop into a chronic type of the disease. In two of my cases the albuminuria was still present at the end of the third and fourth week respectively, and, furthermore, examination showed that the edema and urinary sediments were quite the same as at the beginning of the disease, perhaps rather increased. Here one will be justified in considering that the outcome would probably be a chronic kidney affection. The cause for the slow progress in one case was probably an elevation in the temperature due to a gonorrheal parametritis, an influence which has also been referred to by Trautenroth.

If we now observe the progress made in the other cases, which had an elevation of the temperature, cardiac failure, etc., we find that usually the symptoms of the nephritis are long in subsiding. This, for instance, occurred in one case, which also presented a chronic cystitis. When the woman was discharged at the end of the third week postpartum, the urine still contained 4% albumin and a few casts. The case with the parametritis ran a similar course.

In two other cases where there was a lesion of the heart, transfusion had to be resorted to. On the other hand, two cases of cardiac complications had a perfectly normal progress of their symptoms. A goitre of pregnancy, complicated with nephritis, was observed but once, and here there was a relapse of the eclampsia. Recurring nephritis without eclampsia was not met with. The occurrence of hemorrhagic diathesis in nephritis is interesting. In one case the appearance of numerous hemorrhagic spots was noticed. Quite similarly, in a case reported by Winter, having a premature separation of the placenta, the body was covered with petechiæ. In relating this case the author says that the tendency to hemorrhage belongs to the symptomatology of every case of nephritis, both chronic and acute.

The number of nephritides of pregnancy are in the minority as compared with the number of pregnancy kidneys. I refer to such then when there exists a group of symptoms in which albuminuria, without casts, occurs, shortly before or during labor and soon afterwards disappears. The edema occurring in these cases is not generalized, only partial; nevertheless it may be severe. In my collection of cases there were nineteen with albuminuria without casts. In these it was noted that five, on account of the general edema, should be subtracted. There consequently remains fourteen cases of pregnancy kidney to which can be added eighteen of the thirty-two cases where no report as to the microscopical findings of the urine have been made. Albuminuria occurs most frequently the day before, or during labor and there is between 1 to 7% and, in most cases, it disappears on the second or third day postpartum.

Eclampsia accompanying pregnancy kidney was met with in twelve women and in these cases the albuminuria was present somewhat longer, namely from one to two weeks. In seven of these cases the edema was slight, in eight it was absent, while in the remaining seventeen patients it was generally confined to the joints, the lower limbs and was rarely seen on the face and abdominal walls. In eighteen patients no report was made as to the presence of abnormal elements in the urine, while in the remainder,

epithelium and leucocytes were present. In many cases the epithelium was of the flattened variety, sometimes accompanied by mucous bodies. As casts were lacking, one is justified in considering these cases as pseudo-albuminuria. The type of epithelium found, probably originated in the bladder. I cannot state with certainty from what part of the urinary tract the rest of the epithelium, especially the transition epithelium, originates. Trautenroth, who refers especially to pseudo-albuminuria during pregnancy, comes to the conclusion that the increase of epithelium in the urinary sediment can be accounted for by a greater desquamation in the excretory urinary passages, especially the bladder.

Primiparæ and multiparæ were about equally affected with pregnancy kidney, and not a single patient died.

There is still to be demonstrated what influence protracted labor has upon albuminuria and its accompanying symptoms. In eight cases hydramnios was diagnosed; four were primiparæ, four multiparæ. One case had eclampsia and one a heart lesion; two were twin pregnancies. The albuminuria usually reached a high degree, up to 15%. The edema was almost without exception, generalized and severe. In six cases report of the analysis of urine is lacking, in two cases casts were found. The case complicated by eclampsia with twins, was fatal. In the remaining cases the albuminuria and its symptoms disappeared during the first week postpartum.

Twins were delivered in five women. With one exception they were primiparæ. With a protracted labor the amount of albumin was usually large, from 7 to 15% and the edema, varied in intensity. Casts were present in three cases and no mention is made of it in two. The progress of all the symptoms showed nothing unusual.

Only one patient, in her second pregnancy, had a narrow, flat, rachitic pelvis. Whether the edema was severe or not is not stated. There was a fair degree of albuminuria and many casts. The progress of the kidney symptoms was the same as in any other case.

Abnormally large children were met with in four cases

and the duration of labor was long, instrumental interference necessary. In the first case there was also hydramnios, the fetus was rotated and extracted. The fair amount of albumin was accompanied by a severe edema. The progress of the case showed nothing abnormal. The second case was a primiparæ; a large amount of albumin and numerous casts; delivery with forceps, the mother died. In the third case the fetus was very large. The mother a primiparæ, presented edema of the lower limbs, and a fair amount of albuminuria. After a labor of thirty-two hours, an eight-pound child was delivered by forceps. The fourth case was one of contracted pelvis, so much so that perforation and craniotomy had to be resorted to. Edema is not mentioned, but the albuminuria was marked and accompanied by a large number of casts.

Almost all of these cases have, in common, protracted labor. It is to be noted that, during labor, the excretion of albumin was regularly increased and numerous casts were present. I can consequently agree with Ingerslev when he says that: "The correctness of Winkel's statement, that all the conditions upon which a protracted labor depend, such as a bad position of the head, a contracted pelvis, etc., have a considerable influence upon the albuminuria during labor."

Observing the connection between albuminuria, diseases of the placenta and death of the fetus, we must first consider in what cases labor did not occur at the proper time. Altogether I find eighty-seven cases. Of these forty-nine went to term, while thirty-eight were premature births. One case was a phthysical patient with an nephritis of pregnancy, who aborted during the third month. In two other cases of nephritis there was a miscarriage, respectively in the sixth and seventh month. In the majority, however, the women were confined at the end of the eighth month nine times, sixteen times during the ninth month and eight times at the beginning of the tenth month of pregnancy. Twenty-two of the fetuses were stillborn, six showing various degrees of maceration, while three were apparently dead. Of the sixty-five infants alive at birth, fourteen were unable to live, or died soon after birth, so that, out of the

eighty-seven fetuses only fifty-one lived. Consequently, the infant mortality was 42%. Besides, four of the children born alive were more or less hydropic and their growth comparatively poor. In one case complicated by hydramnios, the mother showed severe general edema, which increased during the first few days of the puerperal stage. The fetus was edematous in the lower limbs as far as the popliteal space, and was livid. The other fetuses had edema of the legs, vulva or scrotum.

That the premature death of the fetus in nephritis can take place, is shown in one case where the patient had gone through a premature birth with eclampsia, a term labor with eclampsia, and then in the third pregnancy had a premature labor. In the third confinement, accompanied by nephritis, there was a slight eclamptic attack; the child was about in the eighth month of pregnancy and maceration had commenced. Another of our cases was similar. At the first confinement there was a dead fetus, five and a half months old. The second pregnancy, complicated with hydramnios, ended in the birth of an undeveloped child.

The question arises as to where the cause of the premature labor and death of the fetus can be sought. Syphilis, as an etiological factor, is not to be considered in our cases, because it was only found with uncertainty in two patients presenting albuminuria. Moreover, in one of these, the child was carried to full term and lived without showing any signs of hereditary lues. In the other case, however, there was a premature birth. The fetus lived, but showed no vitality and gave evidences both internally and externally of hereditary syphilis. Here, also, the history is one of habitual death of the fetus. The tissue of the placenta was brittle and in some spots it had a grayish-red hue.

From the series of investigations already mentioned, I believe that the most frequent cause of premature labor, besides syphilis, is nephritis. Nephritis predisposes to certain changes in the placenta, and these again lead to early death of the fetus. This theory has been upheld by many eminent men. These placental changes cut off a certain amount of the respiratory surface from the fetus, and this results in death of the latter.

In my series of cases I did not find placental changes in as large a number as might be expected. The placentæ were examined especially for three purposes. The most frequent changes in the placenta were fibrous adhesions. These were found usually on the border, sometimes in the middle, and in one case it was very marked. Here the placenta showed, on the maternal aspect, numerous thick fibrous adhesions. Albuminuria was marked and there were many casts; labor, complicated with eclampsia, was premature and the child dead. It is evident that, from the fibrous degeneration, the placental tissue cut off a certain amount of respiratory surface, causing death of the child. In another case of nephritis, with eclampsia and premature labor, the placenta was found anemic and tough. Besides, many apoplectic spots were found in the placental tissue. Similar ecchymotic spots were scattered through the placentæ in several other cases; in one a spot the size of a walnut was found. The mother died of eclampsia before labor, and the anatomical diagnosis of acute hemorrhagic parenchymatous nephritis was made. I also found fatty tissue, apparently undergoing fatty degeneration, sometimes contained in the blood clots, when the nephritic symptoms were very severe and here the births were premature and the fetus dead. This occurred in three cases.

As a serious and frequent complication of nephritis, premature separation of the placenta is often mentioned. It usually makes itself known by hemorrhage. The latter may, however, be prevented by counter pressure, if hydramnios is present. Premature separation, which may be a cause of death of the fetus and premature labor, were met with only a few times. In one case before labor the uterus became distended by a severe retroplacental hematoma, as was found later. No external hemorrhage resulted, because the placenta adhered to the uterine wall until after labor. The child, which was at full term, was in no way affected. On the other hand, a dead premature child was born in one case of eclampsia, where the placenta showed numerous blood clots on the maternal aspect, especially towards the centre, and in this case no external hemorrhage took place. In another case, however, blood

was passed several times before labor and the child was born dead and macerated. The record gives no mention as to the condition of the placenta. An external hemorrhage was also observed in the case above mentioned where the placenta presented an apopleptic focus the size of a walnut. The explanation was revealed by the condition of the placenta, because it was torn through by the hematoma.

Placenta marginata was observed in two cases; one with eclampsia, which ended fatally, the other in a nephritis ending prematurely between the eighth and ninth month. I am unable to conclude whether or not these placental changes were caused by the nephritis, and whether or not the premature birth was due to them, because I have so few observations that no exact conclusions can be arrived at. It can, however, be said with certainty, that changes were only found in those cases where particularly marked symptoms of nephritis were noted.

In the kidney of pregnancy and the nephritis of pregnancy, as long as there is no eclampsia, the prognosis for the mother is comparatively favorable. I have records of only two cases where the renal affection became chronic. The maternal mortality is slight. No case was operated on on account of threatening symptoms.

The fetal prognosis is more unfavorable because frequently premature labor results and the child is either born dead or without any vitality on account of the lack of development. In my cases the fetal mortality where no eclampsia occurred, was eight out of forty-seven, in other words, 17%.

On the other hand, if the nephritic symptoms are combined with eclampsia, the prognosis, especially for the mother, is worse, because, eleven out of fifty-four eclamptics, died, making a mortality of 20%.

Of the fifty-four births in eclamptics, seventeen were spontaneous, and here only one mother died, in other words, a mortality of 6%; that of the children was 41%. Twenty-three labors were instrumental and the mortality to the mother was 22%, that of the children 35%. Consequently, the total mortality of the children in eclamptic patients was

37.5%. Dilatation of the os was resorted to in eight cases, with one death. The forceps were resorted to ten times, with two deaths to the mother; seven times version and extraction was done, resulting in three deaths to the mother, while in one patient Caesarian section was done in mortua; the child died. The high percentage of mortality in operative interferences can be explained by the fact that it is the most severe cases that require interference.

The therapy of the nephritis of pregnancy and pregnancy kidney consists in rest in bed and a milk diet, as long as no other threatening symptoms are manifest. If the patient is drowsy, restless, etc., then hot baths should be ordered, likewise hot packs, in order to promote diaphoresis. And lastly in threatened eclampsia, chloral hydrate and chloroform are indicated. Chloral hydrate at the dose of one to two grams per rectum and inhalations of chloroform, accompanied by the usual therapeutics of nephritis, is all that can be done.

INTERNAL URETHROTOMY COMBINED WITH INCISION OF THE FOCUS IN THE TREAT- MENT OF URINARY INFILTRATION.

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WHEN the urine bursts from the bladder and penetrates the surrounding tissues it is termed infiltration of urine. The urinary apparatus in its entire extent is exposed to this accident, but it has rarely been observed arising from the renal pelvis or ureter, and, when this and are entirely different according to the organ which has does occur, these cases of infiltration take on a special form been submitted to trauma. In most cases the urethra is the starting point of the infiltration, and here we have two types to distinguish, according to whether the solution of continuity has taken place above or below the middle aponeurosis. Above the aponeurosis, the rupture is only met with under most particular circumstances, such as in perineal incision, or a rupture of the membranous portion of the urethra. The infiltration nearly always takes place in front of the membranous region, and in this case, if calculi, or a urethral wound made from without inwards have torn the walls, have created an opening for the exit of the urine, this is most exceptional.

In the large majority of cases an infiltration of urine is the result of a urethral stricture, and two conditions are necessary in order that this takes place, viz: (1) Changes in the urethra behind the stricture, and (2) a high pressure of urine contained in the bladder. Behind the stricture the urethra is dilated, its mucosa thinned, and if rarely ulceration is present, inflammatory lesions are, at any rate less frequent. The urethral walls, on account of the chronic urethritis, have become friable, greatly lessened in resistance, and form the essential predisposing cause. On account of

the obstacle offered to the exit of the urine by the stricture, the walls of the bladder finally become hypertrophied; to the exaggerated contractions of the bladder voluntary efforts made by the patient at the time of micturition become added, and it is nearly always following these that rupture of the urethra takes place.

The degree of the stricture plays a secondary rôle, much less important than the urethritis. In point of fact, urinary infiltration has been met with in cases of stricture allowing sounds as large as 8 or 9 F. to pass. The rupture being of small extent, the urine infiltrates slowly and gives rise to symptoms of less intensity, finally resulting in a urinary abscess. In order that a diffuse infiltration can occur, a large tear is requisite and its point of predilection is on one of the lateral walls of the urethra, immediately behind the stricture, in other words, usually in the bulbous region. When once the urine has become infiltrated it follows the route which is imposed upon it by the arrangement of the aponeurotic layers and is as follows: The middle aponeurosis of the perineum is inserted on the pubic symphysis, the descending branches of the pubis and the ascending branches of the ischium. Behind it forms two layers, one upper and one lower. The latter alone is of interest to us. Going around the transverse muscle of the perineum, it continues with the superficial aponeurosis and forms the posterior limit of the lower perineal space where it forms a resisting barrier difficult for the urine to break through. This lower perineal space is closed laterally by the superficial aponeurosis which is inserted on the borders of the pubic ogive and continues forward with the fibrous sheath of the penis up to the base of the glans. This explains the aspect of this region in urinary infiltration which, in the majority of cases, produces a marked edema of the penis and scrotum. In point of fact since the urethra passes through the median aponeurosis in its membranous portion, one can readily understand how a rupture taking place in front of this portion gives access to the lower perineal space and never in the upper layer of the scrotum.

The urine, in the first place, breaks into the perineum, ex-

tends into the penis and then in the region of the glans it breaks through the membranous barrier, and follows a retrograde course in the superficial cellular layer and invades the scrotum.

Its extension may be considerable; it attains the pubis, the abdomen, the lumbar region and may even reach the axilla. The thighs, generally speaking, are protected from infiltration by the adhesion of the skin and the poupart's ligament. Occasionally, the penis and the scrotum are spared when a rupture in the superficial aponeurosis allows the urine to infiltrate the abdominal walls and pubis.

It is easy to understand from this rapid description that infiltration of urine, which represents an accident of more or less gravity, but always real, is often met with from the very fact of its etiology, because urethral stricture is very frequent. From the points of view of its relative frequency and gravity, urinary infiltration offers a very broad subject to study and should be carefully considered.

The action of the urine on the tissues is extremely noxious. Whether it comes in contact with the skin, the mucous or serous membranes, or if it becomes introduced into the interior of certain viscera an inflammation always results which develops more or less rapidly according to the individual susceptibility of the tissues which come in contact with it. It may, however, be said that *normal urine* has no individual septic character, and, consequently, some time is required before an inflammatory reaction of the skin or the mucosa takes place. When the urine enters the blood, death often results from urinary intoxication. This would seem to be a contradiction to what has been said above, but, in point of fact, a normal acid urine is inoffensive, but the same is not the case when it has undergone fermentation within the bladder. In this case the reaction is always alkaline from the development of ammonium carbonate, and in this case we meet with rapidly developing gangrene of the tissues, stripping the penis and involving the scrotum to such an extent that the testicles are frequently laid bare and by involving the cellular tissue, which is so extensive in the perineal region, large, multiple and irregular cavities are found.

If we now consider the classical treatment of infiltration of the urine, one will find in looking over the writings of those who have given particular attention to diseases of the genito-urinary system, that there is a nearly unanimous opinion as to the treatment. This is essentially surgical and I will first describe the technique employed by Guyon. In the first volume, page 155, of his Clinical Lectures, he says: "The incision should be made exactly in the median line, extending from the scrotum to the anus, and should comprise the entire thickness of the perineum, only stopping when the urinary pocket has been freely opened. The incision thus done will have the double advantage of arresting the progress of the infiltration and assuring a free drainage of the urine. *It is only much later that the urethra should be attended to.* A large number of cases have made me form a very distinct conviction in this respect. As much benefit as you may derive from a large perineal incision, freely opening the urinary foci, as much risk you will cause your patients by prematurely introducing a sound or a bougie, and still more in performing urethrotomy too early. It is my habit to wait before treating the urethra. The perineal focus must first be well cleaned out and retains no pus. It is better to have it granulate freely in order to act with more security. This manner of proceeding prevents all accidents. This has been demonstrated to me too many times for me to feel justified to advise any other action. I am all the more authorized to make this statement because a very careful antiseptis in the opening of the focus, as well as for secretion of the stricture, will not prevent complications.

"If the flow of urine remains difficult, if the bladder does not empty itself, it is evidently necessary to assure its evacuation; but this eventually does not usually present itself. If this were the case one would in only primarily making the incision, act secondarily on the canal.

"The evacuation and cleansing of the focus will have already modified favorably those conditions capable of giving rise to infection of the spongy vascular tissue which surrounds the urethra, and this is the danger to be avoided."

Desnos in his work on Diseases of the Genito-Urinary

System, thus describes the treatment of infiltration of the urine: "The interference should be as nearly as possible. The principal indication is to make a perineal incision sufficiently extensive and deep in order to open the principal focus of infiltration. The patient being placed in the lithotomy position and all antiseptic precautions being observed, an extensive incision is made in the median line from the scrotum to the anus; layer by layer the skin, subcutaneous, cellular tissue and lastly, the superficial aponeurosis of the perineum are incised, under which the principal focus is found. A flood of pus and urine escapes, showing that the focus has been reached. This aponeurosis should be incised in its entire extent. Lastly, the finger introduced to the bottom of the pocket breaks down the walls and often withdraws large strips of necrosed tissue. One should keep exactly in the median line, even when the tumor projects on the right or on the left; one thus avoids wounding the superficial artery of the perineum.

"This incision, which is capital in the treatment of infiltration, is not always sufficient. When the urine has extended under the integuments up to the pubis or the abdominal walls, other incisions are necessary. These should include the skin, dividing the infiltrated cellular tissue down to the superficial aponeurosis, which should be respected. By following the progress of the infiltration, it will be seen that the liquid extends between the skin and the superficial aponeurosis. To open the latter would consequently give an entrance into the deeper structures to the urine and pus. These incisions should be preferably done in the declivous portion, and especially in the limits of the invaded parts; they have been called by Guyon 'incisions of limitation.'

"The antiseptic method should be applied in all its rigor; nevertheless the irregularity of the pocket, the vascular richness of these tissues and the large surface open to absorption will cause one to observe a great reserve in the use of strong antiseptics. In fact, it is common to see the urine become dark-colored after carbolic acid dressing or irrigation; and for still greater reasons, the use of sublimate should be carefully

watched, the same as in the case of iodoform. One should be careful after using strong solutions of sublimate or carbolic acid, to irrigate the wound with sterile water or a solution of boracic acid.

"The perineal incision gives issue to the urine which comes away in toto through the wound; consequently, the dressing should be of a very absorbing nature. A mistake will be committed if one should at once try to re-establish micturition by the urethra; we have seen that the spongy vascular sheath of the urethra enters into the focus filled with septic débris; now, the best conducted and most moderate interference may produce a lesion of the urethral tissues, open the vessels and facilitate the introduction of infectious elements into the circulation, all the more easily because these tissues have for some time been pathologically changed and friable. *Consequently, under no pretext should urethral catheterism be undertaken during the first few days.*

"The drainage of the urine, assured by the perineal wound, allows one to wait from three to four weeks. It is at this time that the stricture should be dealt with; the repeated manœuvres necessitated by gradual dilatation often result in a rise of temperature, consequently, the treatment of choice should be internal urethrotomy."

In his treatise in clinical surgery, Tillaux expresses himself as follows: "The treatment of infiltration of urine is so important that, when well conducted, it may save the patient's life, even at a very advanced period of the trouble. It is, for that matter very simple. There are two capital indications, namely, to give issue to the infiltrated urine and arrest the progress of the infiltration. The first is the one which is at once imperative; immediately make large deep incisions in all the tissues which are involved, in order to give exit to the pus, the necrosed tissues, and, above all to the urine. The second is obtained by introducing a temporary catheter; it is often difficult to accomplish before the infiltrated tissues have become relieved because the urethra is difficult to find; the essential point, for that matter, is that the urine is given a free exit. *As soon as you can, introduce a rubber catheter*

into the bladder, no matter how small it may be, and retain it there, gradually increasing its calibre until a cure has been obtained."

Bouilly, in speaking of this subject, says: "The treatment of urinary infiltration comprises two principal indications; (1) to give exit to the infiltrated urine, and (2) to re-establish the normal course of the latter. In order to fulfill the first indication, large and deep incisions should at once be made; the patient in the lithotomy position, the surgeon makes a long median incision over the perineal tumor until the knife enters the focus, from which will escape a mixture of urine and pus; this incision made in edematous tissue may reach the depth of from 6 to 7 cm. and should be continued until one is assured of a complete emptying of the primary focus.

"Other incisions should be made on the scrotum, penis, hypogastric and inguinal regions, in other words everywhere where redness and swelling indicates the presence of urine in the cellular tissue. All these incisions may be advantageously done with the thermo-cautery and free antiseptic irrigations should be kept up on the days following, while the free drainage should be assured by the introduction of drains in all the points where the tissues have been undermined. A tonic and stimulative treatment should also be ordered.

"During the following days one should try to introduce a catheter into the bladder, and, if, in exceptional cases, this cannot be accomplished, external urethrotomy should be done in order to prevent the formation of a urinary fistula, this being prevented by the re-establishment of the continuity of the urethra."

In the treatise on surgery published under the direction of Duplay and Reclus, this question is treated by Forgeue in about the same way. Opening of the focus should be done as soon as possible; afterwards large drains should be inserted and all antiseptic precautions taken. Then, according to the opinion of Guyon, two stages are used in the operative treatment. In the first place, incision of the focus, and then, secondarily several days later and when the perineal wound is fully granulating, internal urethrotomy is done.

This author points out that section of the stricture is an excellent precept, the small wound is situated in the midst of the septic focus, and helps the perineal incision, which may be found insufficient to give exit to all the products of infection, while the use of the temporary catheter, no matter for how short a time, produces a more or less complete obstruction of the urethra, according to the size used, and favors the development of the pyogenic bacteria. Tuffer, having misunderstood this principle, met with a high elevation of temperature with chills and sweating in two cases. Consequently, the prudent rule to follow would seem to be to avoid all manoeuvres in the urethra until the periurethral tissues have been rendered aseptic.

In their treatise Follin and Duplay recommend identically the same treatment of the infiltration and then state: "Then, at the end of a certain time, in order to deal with a stricture and re-establish micturition, a temporary catheter should be introduced, the calibre of which should be progressively increased. If it should be impossible to catheterize, one will, of necessity, be obliged to have recourse to external urethrotomy. But this obligatory interference should never be undertaken until several days have passed since the opening of the focus of infiltration."

We thus see that on every hand the same rules are given for the treatment of infiltration of urine and which we can designate under the name of "Classical Treatment." Relative to the interference on the urethra the opinion seems to be unanimous that it should be performed later on. But this operation has given rise, as has been seen, to various opinions as to the exact time when it should be undertaken. Some advise internal urethrotomy, others external urethrotomy, or simply gradual dilatation in order to re-establish normal micturition.

Summing up the various opinions of the above mentioned authors, it may be said that they advise two distinct surgical interferences, namely, (1) the opening of the focus of infiltration, and (2) a special treatment directed towards the stricture. In order to open the focus of suppuration all are of the same opinion that it should be performed as early as

possible, and if one can, as soon as the appearance of the first symptoms of infiltration make themselves manifest, it should be done because a cure will be all the more rapid, the earlier the operation has been performed. The unanimity of opinion continues for antiseptic precautions and drainage.

Leaving aside the question of the necessity of acting as promptly as possible in opening the focus, we find very different opinions for the remainder of the treatment. Some believe that, after opening the focus of suppuration, one should render the calibre of the urethra normal as soon as possible and, in this respect, Tillaux advises treating the urethra as soon as the edema of the penis has diminished sufficiently to allow one to find the meatus. Others, among whom I may mention Guyon, Desnos and Forgue, believe it is better to wait and only treat the stricture when cicatrization on the perineal wound is nearly complete. Still others advise catheterism with a rubber catheter, whose calibre should be progressively increased until the urethra has been brought back to its normal calibre, while still others advise external urethrotomy or internal urethotomy.

All the writers, whose opinions we have given on this question, are unanimous in advising two stages in the treatment. Now, without wishing to transgress on the rules established by such authoritative opinions, I wish to make some personal remarks based on the teachings of Sebileau. It is true that they are based merely on three cases whose histories I shall simply mention, but which seem to me to establish the opinion that in certain cases, it is well to resort to *both operations at the same sitting*. Urinary infiltration, as we have already pointed out, cannot be radically cured until a treatment has rendered the urethral canal its normal calibre. Is it, consequently, possible to kill two birds with one stone without making the patient run any risk and by this means in a single operative séance do away with immediate dangers of urinary infiltration and to the future accidents to which the stricture may give rise? To this I believe I can reply in the affirmative and the three cases to which I shall now refer show that it is quite possible to incise the focus of suppuration

caused by the urinary infiltration and at the same time cut the stricture in the urethra.

The three cases operated on by Sebileau are very similar in their history and may be summed up in a few words; two of them were hospital cases, the other was a private patient. All three of them had had a stricture of the urethra for many years and all were suddenly seized with an infiltration of urine, the perineum, scrotum and inguinal region being involved. In all three the stricture could not be passed and catheterism was impossible. All three were submitted to the same treatment. The foci of infiltration were freely opened at several points with the thermo-cautery, while small incisions were made between the larger ones. A small bougie was then passed through the stricture, after which internal urethotomy was immediately done and a No. 16 F. was introduced into the urethra. In each case the results were excellent; the temperature fell at once and not a single drop of urine came through the perineal wound, the latter closing up very rapidly. During a week the temporary catheter was left in place and at no time did the temperature go up. Finally, at the end of a fortnight, progressive catheterism was commenced without waiting for complete cicatrization of the wound. A cure was complete in from four to five weeks.

It is quite evident that, from these three cases, I do not wish to formulate an absolute rule, nor do I intend to make any criticism on the classical treatment. Nevertheless, I cannot help believing that in the future this method will be adopted. After more cases have been reported where internal urethrotomy has been undertaken at the same time as the incision of the infiltration, and if the results are as good as those reported, I believe it will become an everyday practice. In point of fact, and in the first place, among the numerous advantages offered by a single surgical interference, the great rapidity in the recovery by this method certainly has its importance, because, with the method generally employed, after the perineal incision, and in spite of careful dressing and drainage, the normal exit to the urine still

remains obliterated, so that it is discharged by the incision made in the perineum, and, consequently, delays the cicatrization of the latter, a delay which certainly would not take place if the urine was discharged by the urethra after opening the perineal abscess which would then follow the laws of cicatrization or ordinary wounds. Then, again, when urethrotomy is done at the same time as the operation on the perineum, the patient is submitted to narcosis but once, and this is no mean advantage, because at any time, in spite of great care, general narcosis is always attended by some risk. In a word everything seems to favor the technique which I recommend.

THE SURGICAL TREATMENT OF NEPHRITIS.

THE idea of systematically treating the various medical nephritides by surgical interference developed in the minds of surgeons from the unexpected results obtained in cases of nephritis operated on from a mistaken diagnosis. Péan in 1886, Le Dentu in 1898, were the first to draw attention to pain simulating lithiasis when, in reality, it was distinctly symptomatic of certain forms of nephritis. However, Edebohls, without any doubt was the first to carry out an operation with the object of curing Bright's disease by decortication of the kidney. From this time on researches increased in number and it appears only proper to point out to physicians the considerable amount of hope which can be offered by a surgical interference when one is dealing with nephritic accidents which resist all forms of medical treatment.

Decortication is intended to remove the pressure from the kidney strangled in its unresisting capsule, and thus allow the renal circulation to become re-established. Then, at the same time, a local bleeding is obtained during the operation which decreases the congestion of the organ gorged with blood, while the neoformed perirenal blood vessels arise a few days after the operation. Consequently, renal decortication is indicated in all cases where the intra-renal pressure is increased, and this occurs in various forms of nephritides.

In the first place this hypertension produces functional disturbances only, but, if it continues, it is not long in setting up permanent lesions. In certain cases it is the result of a reno-renal reflex of the diseased on the healthy kidney and Pousson, admitting this mechanism, even admits a sympathetic nephritis, similar to sympathetic ophthalmia. Therefore, it is of importance to cause it to subside as soon as possible, in order to preserve the integrity of the healthy kidney, because, at the present time, it is well known that a unilateral nephritis may exist. The congestive attacks in the renal parenchyma may manifest themselves in three ways,

viz.—by prolonged and spontaneous hematuria, which is uninfluenced by rest; by attacks of pain of such intensity that they may simulate nephritic colic; and thirdly, by a combination of these two symptoms. The process is then termed a hematuric nephralgia and it may be unilateral. As to the origin of the hematuria, various hypotheses have been admitted, such as very great tension of the capsule, degeneration of the renal parenchyma produced by some unknown general disease, whose secondary manifestation is represented by Bright's disease. However, no matter what may be the cause, it is not surprising that decortication acting on several of these factors, results favorably.

The same may be said of pain. According to some authorities this is due to compression of the parenchyma by an adherent and sclerous capsule; for others it is due to congestion of the kidney resulting in compression of the latter from the inflexible capsule; and lastly, others believe that there are several factors combined. It is easily understood that decortication will naturally have a favorable action in the case of pain.

Ertzbischoff has carefully reviewed the experiments performed up to the present time, either upholding or denying the results obtained by Edebohls. They prove that, after decapsulation, vascular adhesions develop around the kidney, likewise a new capsule which is firmer and thicker than the original one. But, if the kidney is enclosed within a peritoneal fold, the capsule is not reproduced. These experimental researches are based upon 212 cases and it is also shown that usually there is an improvement in the patient's condition immediately after the operation. The pain, and occasionally the hematuria, disappear on the day of the operation; diuresis is increased, occasionally diminished, but Claude and Balthazard have demonstrated that the proportion of the chlorides and urea are increased no matter what may be the quantity of urine voided.

The ultimate results are less brilliant. In nearly all cases where the patient has lived for any length of time, the improvement obtained was only temporary. In some of the more fortunate cases, restitutio ad integrum was never per-

fect and albuminuria with casts was noted. Ertzbischoff does not believe that a complete cure is possible. The operation may cause the accidents of a temporary renal insufficiency to disappear; it may momentarily arrest the evolution of the nephritis, but it cannot do away with the cause of the lesion. It is possible that it favors epithelial regeneration, but, up to the present time, this has not been proven. On the contrary, Stern has found interstitial changes more marked after the operation than before.

Knowing what we do now, it appears to us that acute nephritis should never be interfered with surgically, but operation might be indicated if, in spite of diet and appropriate treatment, the edema persists, and if the dyspnœa and cardiovascular disturbances continue, if the oliguria or anuria do not improve, or if severe hematuria should arise, decortication may be properly resorted to. As to chronic nephritis, as long as diet and treatment are sufficient to keep up a satisfactory elimination, one may wait, but, as soon as it becomes inefficient, decortication should be done. One should not interfere too hastily, because a spontaneous cure can occur, but, on the other hand, one should not delay too long.

THE PROGNOSIS AND TREATMENT OF POLYCYSTIC KIDNEY IN THE ADULT.

THE prognosis of polycystic kidney is serious, because up to the present time not a single case of cure has been published. The polycystic kidney is fatal for the patient, but it should be pointed out that although it causes death more or less rapidly, still occasionally the lease of life may be quite long. It should also be remarked that this pathologic process is compatible with life for a long time, since cases are not infrequently met with where death has been the result of some intercurrent disease, having no relationship whatsoever with the renal affection.

Nephrectomy is absolutely contra-indicated and this has been generally admitted for a long time and the cases of rapid death from uremia occurring soon after removal of the renal gland are sufficient to demonstrate the danger of surgical

interference. In some other cases where operation has been undertaken, death resulted from secondary hemorrhage.

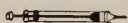
Some surgeons have advised performing nephrotomy and evacuation of the cysts, but the utility of this interference is difficult to understand, when one recalls that the liquid will reappear in the cysts with very great rapidity after evacuation, as was observed by Ménétrier and Aubertin in their very carefully recorded case, which, by the way, was diagnosed during life.

We consequently are of the opinion that medical treatment alone is applicable and the patients should be treated along the same lines as in chronic nephritis. A milk diet, when the albuminuria is marked or when the uremic phenomena appear imminent, should be the base of the treatment. If uremic accidents have become established, bleeding may find an indication. Locally, the pain may be ameliorated by the usual means at our disposal, namely, cocaine, morphine, etc.

In some cases evacuation of the cysts by puncture has been followed by an improvement in the painful phenomena, either because the tumor, being less distended, exercises less pressure on the neighboring organs, or, perhaps, the result was merely a purely psychic effect. This, however, is only a gross therapeutic measure, because the fluid is reproduced with great rapidity in the cyst. However, if a suppurative process should arise, nephrotomy and incision of the abscess may be resorted to, although the case recorded by Lejars is far from encouraging, as death occurred shortly after the operation.

Original Abstracts and Translations

PROPHYLACTIC INUNCTIONS OF MERCURIAL OINTMENT. Carle (*Lyon Medical*, February 9, 1908, page 289), in an interesting article reviews the question of the methods of preventing syphilitic infection. On the basis of four personal observations, he studies the effects of the so-called prophylactic ointment of Metchnikoff, who recommends a calomel ointment for this purpose. The four patients were the victims of their confidence in this ointment. He regrets that the public, the daily press and some members of the profession have been hypnotized by the authoritative tone of the publications of the Pasteur Institute, and summarizes the most practical measures which have served for generations in the prevention of syphilis much more than calomel ointment ever has: Careful washing, before the act, abundant inunctions with neutral fats and the use of condoms. The author closes with exhortations for chastity.



THE VALUE OF ARSENIC IN SYPHILIS. A number of papers have appeared within the past few months on this subject. One of these by P. Salmon (*Annales de l'Institut Pasteur*, Nov. 8, 1908, page 66) is of sufficient importance to merit abstracting. Arsenic has been used in syphilis for a long time, the old Donovan's solution being a mixture of mercury, iodide and arsenic. Lately, the cacodylate and the salicylarsinate of mercury have been used extensively, but in all these methods, arsenic was used rather as a tonic, an adjuvant to mercurial treatment, and not as a specific.

On the other hand, atoxyl (arsenic acid anilide, Béchamp) which contains 37.69% of arsenic, has been used by several authors with the idea that it has a specific action against the spirocheta. It is used in the form of injections, the solutions being boiled before using. The strength of the solution varies from ten to fifteen per cent. and the injections are usually given intramuscularly. Atoxyl is also used in the

form of ointments by Hoffman and by mouth (Balzer). Clinically it is said to act more rapidly than mercury, and Salmon considers it as a specific remedy for syphilis. In some cases, he was able to avert the appearance of secondaries by the early use of atoxyl. The remedy also has a favorable effect upon tertiary lesions. According to some authors, it is indicated especially in severe types and in precocious malignant syphilis. In all probability, atoxyl acts upon the spirocheta indirectly through the medium of leukocytes. The pathogenic agent, perhaps, acquires a certain amount of resistance against mercury or atoxyl, and, therefore, the two remedies should be administered in alternating succession. Both mercury and atoxyl can be used in combination with good results. Atoxyl is easily eliminated through the urine, but two or three days should be allowed to elapse between injections.

In some patients, the use of atoxyl has led to the presence of symptoms of poisoning, especially of transient visual disturbances, which, in some cases, were followed by atrophy of the optic nerve. These symptoms, however, followed the injection of large doses of atoxyl (1 gramme) frequently repeated. It is prudent not to use the remedy in patients with diseases of the optic nerve or the retina. The dose of 50 centigrammes should not be exceeded.



ENDOGENOUS PROSTATIC CALCULI. Rochet and Moutot, of Lyons, report a case (*Annales des Maladies des Organes génito-urinaires*, 1908, No. 7, page 533), in which it appeared clearly that a stone was formed in the prostate itself, and thus contributed to the record of endogenous prostatic calculi. The man was 54 years of age and expelled small bits of gravel at intervals. The diagnosis of vesical or renal calculi was made at first, but, on examination, it was found that the prostate contained some hard nodules, which were probably stones. A perineal operation was performed and each of the lobes of the prostate was opened. Through these openings the stones were evacuated. About 150 small calculi, of a yellow color, were removed. The calculi were powdered and analyzed. They contained a considerable

amount of calcium, traces of phosphoric and oxalic acid and a large amount of carbonic acid. They were, therefore, composed largely of calcium carbonate, traces of phosphates and calcium oxalates. While cases of genuine prostatic stones are rare, and while probably there are but fifteen legitimate cases of this sort on record, the endogenous formation of prostatic calculi is undoubtedly possible. In the case reported, the calculi were very small and numerous. Other authors have found stones of considerable size.



THE EVACUATION OF THE ENTIRE URINE OF THE HEALTHY KIDNEY THROUGH THE NEPHROTOMY FISTULA OF THE DISEASED ORGAN. Kapsammer (*Zeitschrift für Urologie*, 1908, Vol. 2, No. 4) points out that after nephrectomy, urine frequently flows through the drainage tube out of the wound. This is due to an imperfect closure of the ureter, or to a slipping of the urethral ligature. He reports a case in which the entire secretion of urine of the healthy kidney was evacuated, not through the urethra as normally, but through the nephrotomy wound of the other side. The case was peculiar in some respects. The patient was a boy aged nine, who had suffered from disturbances of micturition since the age of two. He had frequently passed pieces of membrane and bladderlike masses and on cystoscopy showed necrotic shreds of tissue which were removed upon suprapubic cystotomy. After he had recovered from this operation, the symptoms returned and still further cysts and membranes were found at the fundus of the bladder. A tumor developed in the left renal region and nephrotomy was performed. The left kidney was enlarged and its surface showed white, hard nodules, which on section appeared to be necrotic areas, with cystlike centres. The ureter was very much dilated.

The patient passed very little urine after operation without showing any signs of uremia, but the dressings were saturated with urine. After he was discharged from the hospital, he would often pass no urine whatever through the urethra, while the entire secretion of both kidneys passed into the receptacle which he wore, draining the nephrotomy-fistula.

DIAGNOSIS AND TREATMENT OF TUMORS OF THE POSTERIOR URETHRA. Arthur Lewin (*Zeitschrift für Urologie*, 1908, Vol. 2, No. 4) reports an interesting case of papilloma of the posterior urethra, of which he had observed three cases within the past two and a half years. In all these cases, the patient applied, on account of bleeding, sexual disturbances and premature ejaculations. No way was found to account for the bleeding, either on cystoscopy or anterior endoscopy. The use of the posterior cystoscope, especially that lately introduced by Goldschmidt, enabled the author to make a diagnosis of papilloma of the posterior urethra. With the irrigating posterior urethroscope of Goldschmidt, the author was able to find a tumor of the size of a bean, situated on the left side of colliculus, and looking like a papilloma. The tumor was removed by means of forceps through the endoscope, and on microscopical examination proved to be a papilloma. About a year later, the patient was found to have papillomata in his bladder, which were removed on suprapubic section. The author calls attention to the symptoms of bleeding and disturbances of the sexual function as signs which should lead us to suspect disease in the posterior urethra and should suggest the use of the posterior endoscope.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M. D., Editor.

VOL. IV.

OCTOBER, 1908.

No 10.

ANTIGONOCOCCIC SERUM.¹

By CHARLES CHASSAIGNAC, M. D.,

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FOR several years the discovery of a serum curative or preventive of gonorrhea has been the dream and the hope of those whose experience with this disease has been sufficient to teach them both the importance and the difficulties of its complete cure.

Nothing promising developed until over two years ago when Drs. Rogers and Torrey² made a preliminary announcement of their work in this line. This served at least to arouse attention. The results of their further investigations in the Department of Experimental Pathology of the Cornell University and their experimental treatment of cases as presented to the American Association of Pathologists and Bacteriologists a year ago³ were decidedly encouraging and seemed ample to justify continued tests of the serum on a larger scale.

At this time the work was turned over to the Department of Experimental Medicine of a well-known firm of manufacturing chemists and bacteriologists⁴ and by them I was requested over six months ago to assist in determining how much value there might be in this antigonococcic serum. I consented on condition that I would make clinical tests only as I had neither the time nor the technical skill to make elaborate bacteriologic studies and, besides, these were already being undertaken by others more competent. For a

¹ Read at the annual meeting Louisiana State Medical Society, May, 1908.

² *Journal of the A. M. A.*, Jan., 1906, pp. 261 and 263.

³ Washington meeting, May, 1907.

⁴ Parke, Davis & Co., Detroit.

full description of the preparation of the serum, the two articles already mentioned may be consulted. It will suffice here to say that cultures of the three principal groups which have been found in the gonococcic family are inoculated in sheep intra-peritoneally; for the first two inoculations the cultures are heated to 65° c. during a half hour; for the others, unheated cultures are used and after a total nine or ten the serum is tested and is collected if found satisfactory.

The serum was not found efficacious by Rogers and Torrey in the treatment of acute infections of the urethra, vagina, or conjunctiva. They give as a probable explanation "the fact that many of the infecting micro-organisms are not reached by the serum circulating in the blood." Be that as it may, I have made no attempt to test it in acute primary infections of mucous membranes. Neither have I tested it on suppurative cases, where there is a probability of mixed infection and ordinary surgical intervention is necessary. I have limited my experiments to the two classes favorably reported upon by the originators of the method: 1. Those arising from the direct extension of the primary infection. 2. Those due to the entrance of the micro-organisms into the circulation either directly or through the lymphatics.

My observations have been made on private patients, fourteen in number; in several I used the serum alone, but in the majority I resorted to appropriate local treatment also. However, with the latter I used, as far as possible, analogous cases for comparison which I treated at the same time, but by local measures alone. This explains in great part the relatively small number of patients reported upon: I preferred to collect a few observations of some value, some of which I shall outline in this paper, rather than accumulate a larger quantity of incomplete or uncontrolled data. These observations include cases of prostatitis, seminal vesiculitis, orchitis, cystitis, and arthritis.

The serum has been furnished in sealed glass bulbs containing 2 c. c., about 40 minims, of serum. I have used in all about 150 bulbs on the 14 patients and, as I have gen-

erally given the contents of one bulb, or 2 c. c., occasionally 3 c. c., at a dose, it means that I have given an average of about ten doses to each patient.

The first lots furnished were not numbered, but subsequently some marked No. 2 and some No. 3 were sent, with the request that I note what difference, if any, could be observed in results. The unnumbered variety I found most efficient and, to my satisfaction, it turned out to be the most potent made, showing my imagination had not been at play. Fortunately a good proportion of my supply was of the number one (unnumbered).

The doses were injected in the upper part of the buttock, usually twice a week, occasionally three times, sometimes only once a week in patients living at a distance. Of course, ordinary aseptic precautions were taken. Usually no local effect was produced. On two occasions the inguinal glands of the same side became slightly swollen and painful for a day or two. Several times there were swelling and tenderness at the site of injection, but in no instance did any abscess develop or even the serious threat of any. The injection proper did not prove more painful than any ordinary hypodermatic dose, and, in the majority of instances, there was no unpleasant sequel.

CASES.

1. D. D., of Mississippi, white, male, aged about 40, came in with his physician. History and examination showed he had been suffering from chronic gonorrheal urethritis and prostatitis for over a year and for several months from arthritis of wrist and left metatarsal joints. His left foot and leg were very painful and badly edematous. He was thin, anemic, had tried all kinds of treatment without avail. I made an injection of 2 c. c. at once, repeating it at intervals of two days twice, then every six days. He felt better after the second injection; after a third the arthritis had diminished; following the fourth the prostatitis had improved and at the end of six weeks, during which he received nine injections, he was practically well; he had resumed work, had no more pains, swelling was gone, and he had gained several pounds.

II. A. M., of New Orleans, mail-carrier, aged 28 years, sufferer from acute gonorrhea for six months, had been unable to work for over three months owing to run down condition, muscular pains, and especially recurring attacks of orchitis. Only treatment consisted in inunction of guaiacol ointment to inflamed testicle and six injections of antigenococcic serum, after which he was able to resume work.

III. R. R., of Texas, 21 years of age, had had gonorrhea 18 months, chief suffering due to severe cystitis with pronouncedly purulent urine and such vesical irritability and tenesmus that he had to wear a urinal day and night. Was a morphine habitu   and a physical wreck. Treatment: Injections of 2 c. c. antigenococcic serum, small doses of urotropin and hyoscyamus internally, and the gradual withdrawal of the morphine. Improvement commenced promptly, although it was impossible to irrigate bladder, which could not tolerate even a tablespoonful of urine, and in two weeks he had stopped the morphine. At present he is still under treatment, which now consists of the serum and mild vesical irrigations; has had twelve injections in two months, has discarded his urinal long ago, has gained 19 pounds, and his bladder can hold up to six ounces.⁵

Most of the remaining cases were varieties of the same type: chronic urethritis complicated with more or less prostatitis, vesiculitis, rheumatic pains in muscles, tendons, or joints, together with some degree of debility or neurathenia. They were treated locally in the usual way, together with the injections of antigenococcic serum as previously mentioned. All but one improved to a greater extent or more rapidly than the analogous cases which were treated at the same time by means of local treatment alone.

It will be realized at once that this statement must be made with some reserve as it is difficult to estimate how a given patient would have responded to local measures only. Still it must be remembered that as far as possible a careful comparative observation was made with what might be termed control cases and that the reporter has had experience with such cases for a long time previous to the experiments with the serum.

⁵ This patient has since then returned home practically well.

It was noticeable that the more pronounced the toxemia, or what might be termed the general symptoms, the more decidedly did the good effects of the serum become apparent. This notwithstanding the fact that there is no evidence that it is "in any sense an antitoxin." A possible and plausible explanation might be that the effects of the toxins are of short duration, hence the destruction of the gonococci, by arresting the formation of their toxins, would rapidly lead to a subsidence of the toxemia.

Rogers and Torrey believe that the serum acts by bringing about the destruction of the gonococci in the tissues by means of specific immune bodies it contains. They have promised to publish later the details of experiments indicating that immune bodies are present in abundance in this serum.

Of course the number of cases I am reporting are insufficient to be convincing in themselves, but they may add some weight to the evidence which has accumulated during the past year. The majority of cases previously reported upon have been of arthritis and eighty per cent. of these were declared to have been cured or much improved by the use of the serum alone, while twenty per cent. showed slight or no improvement. Many cases of infection of the genito-urinary organs have also been reported as having been acted upon favorably.

Experiments so far have given encouraging results but *continued trials* on the part of *many* during a *long period* will be needed to determine accurately the true value of antigonococcic serum. Overenthusiasm would be injurious. Nothing interferes more with a just verdict than the swinging of the pendulum too far in one direction as the inevitable corresponding swing in the opposite direction delays the conclusion indefinitely.

The therapeutic efficacy of the serum once accurately determined, it will be timely to study its potency as a preventive of complications.

THE THERAPEUTIC VALUE OF MEDICAL TREATMENT IN CASES OF VESICAL HEMATURIA.

By DR. PAUL SAUVAN, Montpellier, France.

SPONTANEOUS hemostasis by coagulation is one of the defensive processes of the human organism, but it would frequently be of no avail if medical or surgical means were not at our disposal. The control of hemorrhage has always been a preoccupation of surgeons and the means proposed to attain this end are legion. The unanimous opinion at the present time is that moderate treatment should be employed in cases where a hematuria is of small amount; rest in bed with cold applications to the hypogastrium are usually sufficient. But when one is dealing with a severe hematuria, accompanied with clots, the question of surgical interference must be carefully considered. In this paper I shall merely refer to the purely medical treatment, reserving the surgical treatment for another communication, and I shall only consider those drugs which have been employed of recent years and try to come to some conclusion as to the real value of each.

Gelatin. The use of gelatin as a hemostatic was introduced in 1897 by Dr. Paul Carnot. The proper way to administer this drug is by intravenous injections. Gelatin, when administered by mouth, is immediately transformed, and, consequently, loses all its hemostatic properties. The same may be said of rectal injections, while the subcutaneous administration is not much surer. It appears to me that this method is full of uncertainty, both on account of our present ignorance of the transformations undergone by the gelatin when absorbed subcutaneously, as well as from the dangers that the patient may run if a too large amount of the solution should be injected into the circulation.

There remains the local hemostatic method. Carnot employed it with success for epistaxis in hemophilia. Later, Noguès employed it in cases of vesical hemorrhage arising

from a neoplasm and it appeared at the time as if the therapeutics of hemostasis had come into possession of still another agent. But complications which arose after the use of gelatine injected into the system threw it into complete discredit.

Then, again, many communications were published of tetanic accidents occurring after injections of gelatin serum, not infrequently ending in death. Zupnik has recorded a case of tetanus arising after a 2% gelatin solution which was instilled in a bladder for the control of a hemorrhagic cystitis. The flow of blood immediately ceased, but the patient died 48 hours later from tetanus. Not only is gelatin capable of containing the bacillus of tetanus, but it may also contain the microbe of emphysematous gangrene, as demonstrated by the case observed in the clinic of Prof. Mosetig-Moorhof, at Vienna. A bacteriological examination revealed the presence of an anaerobic bacillus similar to that of emphysematous gangrene.

Such facts as these plead eloquently against the therapeutic use of commercial gelatin, unless submitted to an extremely energetic sterilization, but, unfortunately, the temperature which might give perfect security to its employ, that is to say, above 110° C., causes the gelatin to lose its local hemostatic properties. Consequently, as we possess far surer hemostatics and especially products that are exempt from the fearful dangers presented by gelatin serum, we believe that the latter should be absolutely proscribed.

Calcium chloride. In intravenous injections, calcium chloride has given rise to accidents. Dastre and Floresco have met with an instance of generalized thrombosis occurring after an injection of this drug. Given in subcutaneous injections, it is, according to Rabuteau, caustic, while absorbed by the gastric or intestinal mucosa, this salt passes into the circulation and may rapidly influence the process of coagulation. In two instances, Dr. G. Sée controlled very serious hematemesis by this drug. And still more, this salt is rapidly eliminated by the urine and, for this reason, it may possess quite a rapid action on hematuria. Trémolières has related the case of a man with cancer of the kid-

ney, verified at autopsy. Every time that this patient voided a large amount of blood in the urine, a potion containing from three to four grams of calcium chloride was sufficient to completely arrest the hemorrhage.

This salt as a local hemostatic has been particularly studied by Wright. In vitro, calcium chloride increases the coagulability of the blood and, from this fact, Wright decided to verify this hemostatic action in the living. The experiments that were carried out on dogs were conclusive. On the other hand, Trémollières relates the case of a female having an ulcerated carcinoma of the cervix uteri and who developed hematuria of a severe type. Intravesical injections of a 6% solution of calcium chloride were administered, the patient being requested to retain the solution for a time in the bladder. The hematuria was thus controlled and each time that it recurred, an injection into the bladder controlled it. Carnot has recorded a case of a patient having a vesical neoplasm where he was able to stop the hematuria by irrigations with a solution of calcium chloride.

In spite of all these observations it is my opinion that the hemostatic value of calcium chloride has been exaggerated. I believe that it has a real value in ordinary hemorrhage, but I am not convinced of its efficacy in dealing with severe hematuria, at least, I am not in possession of any conclusive proofs so that I can advise it. At the most it might be given internally in order to increase the general coagulability of the blood, while locally one should act on the hematuria by surgical means.

Perchloride of iron. Few drugs have given rise to so many writings and have given place to so many discussions as perchloride of iron. Advocated by many, it has been equally decried. Formerly it was believed that the perchloride might enter the circulation and coagulate the albumin at the seat of the hemorrhage and thus arrest the latter. We know now that this salt transforms into protochloride in the stomach and is only absorbed in this form. Now, the ferrous salts do not possess any coagulating properties.

The external employ of this salt has many numerous applications, the history of which I will not enter into. It is

well known, however, that when applied locally, perchloride of iron produces a constriction of the vessels and coagulation of the blood contained in them, this resulting from the formation of insoluble albuminates. But this salt is extremely caustic and serious complications have been observed after its use, such as phlebitis and embolus. Husemann relates a case where perchloride of iron was applied to the upper lip and, on the same evening, a cerebral embolus occurred, resulting in death.

In genito-urinary work, perchloride of iron has not given those results that its local hemostatic properties would seem to allow one to hope for. In the first place, it is caustic and can only be employed in a very dilute form, and, consequently, this dilution diminishes its hemostatic properties. Quite recently Escat used it on a man whose bladder was bleeding severely—the lesion being probably a papilloma—and where every remedy known had been tried. The result was nil, although a 2% solution of the salt was injected into the bladder. I would point out, however, that, in this case, the injection had no ill-effects on the bladder.

Adrenalin. Adrenalin may be employed in subcutaneous injections, internally, or as a local application. Mahu has reported several interesting observations of inoperable severe carcinoma in various organs which had developed to such an extent that operation was not advisable, where the hemorrhages were nicely controlled by this medicament. Ulcer of the stomach and many other lesions giving rise to severe hemorrhage have been treated by means of this drug, the hemorrhage being completely controlled.

It is now frequently employed where cystoscopy is to be resorted to in bladders giving rise to free hemorrhage and very frequently the latter has been controlled to such an extent that visual exploration of the bladder could be conducted under good conditions. Legueu has only obtained fair results in cases of hemorrhage arising from infiltrating neoplasms of the bladder. Bartrina expresses himself as follows: "I am perfectly willing to say—and I speak from considerable experience—that adrenalin, in the most fortunate cases, will only control the hemorrhage for a short time, at the most two hours, and after this lapse of time, its ac-

tion being already worn out, the hemorrhage reappears and continues with the same intensity as before the use of this agent, if not with greater intensity. Under these circumstances, I do not rely on this agent as a means of treatment, but I cannot say the same of it as a means of diagnosis. In fact, the hemostasis obtained, although momentary, may allow one to make a differential diagnosis between vesical and renal hematuria, because, if after a vesical instillation of adrenalin, the urine collected from time to time remains clear, or has become considerably clearer, one is then almost surely dealing with a hematuria from the bladder. Nevertheless, adrenalin may be tried and, although it has not always produced definite effects, it has, at any rate, succeeded in arresting the hematuria for a few hours, modifying it and preparing the patient for an operation which could only be undertaken in several hours."

Certainly this is an appreciable result. This drug may be given in the dose of 30 drops daily of a solution of 1:1000.

Antipyrin. Administered internally, antipyrin has no hemostatic action. However, as far back as 1884, Dr. Hénocque demonstrated the local hemostatic action of this drug and soon showed by his researches its various applications in this direction. According to Hénocque and Brouardel, blood coagulated by antipyrin resists putrefaction for a considerable length of time. The clot produces hemostasis and, at the same time, asepsis of the wound, which it protects. According to these writers the hemostasis obtained is the result of a triple physiologic action, viz.: vaso-constriction, retraction of the perivascular tissues and the rapid formation of a very dry and adherent clot.

The vaso-constrictive action of antipyrin is not followed by a paralytic dilatation and, consequently, secondary hemorrhage is hardly to be feared, for, in reality, it is quite exceptional. Tardy hemorrhage is also prevented from the fact that the hard and very adherent clot forms an hermetic plug and resisting the action of pyogenic bacteria, it does not give that insecure safety as is the case with perchloride of iron. It has been established, both experimentally and clinically, that, when the hemorrhage has been stopped, this is ordinarily permanent.

Generally speaking, antipyrin is the drug to be selected for local application in all types of diffuse bleeding. Usually its action shows itself quite quickly and the stronger the solution, the more rapid will be the hemostasis.

Besides, antipyrin possesses a sedative action, even anesthetic, which renders appreciable service, particularly when the vesical mucosa is inflamed.

Antipyrin has a bad influence on the heart, producing irregularity of the contractions, the cardiac depression often ending in syncope, but this is only dangerous when very excessive doses have been given, a thing not likely to happen from absorption in situ, otherwise its use in local applications would be extremely limited. In practice, in order to produce toxic accidents, the patient must absorb more than ten grams of the drug.

The coagulating properties of antipyrin that have been mentioned make it one of the surest hemostatics that we have at our command and, for this reason, it has been employed by many surgeons. Its effects have often been remarkable. Guyon and his school, Forgue of Montpellier and Escat of Marseilles have all been able to put a stop to hematuria, in some cases so profuse as to be a menace to the patient.

Antipyrin is a hemostatic that I can thoroughly recommend. It is usually employed in a 5 to 10% solution and from ten to fifteen grams of this salt may be introduced into the bladder in twenty-four hours. The patient should be watched, however, and if any of the symptoms of intoxication become manifest, the dose should be decreased, but if the above amounts are not exceeded, one will rarely observe any untoward symptoms.

Tannic acid. When applied on a bleeding wound, tannic acid coagulates the blood, but, whether or not it contracts the vessels is still an unsettled question. Nothnagel and Rossbach, by their direct observations on the mesentery of the frog, noted that in weak and concentrated solutions, tannic acid dilates the blood vessels. Contrary to these writers, Lewin found that tannin contracted the vessels, this being in conformity with the older views. Whether it acts on the albumin or on the calibre of the vessels makes little difference and all that concerns us is the results ob-

tained, and these are certainly favorable. All writers consider, and justly so, that tannin is a good hemostatic when locally applied. As its hemostatic effects when administered internally are still discussed, I will not refer to them, but I will say that in hematuria, even when serious, tannic acid has oftentimes been of great utility. It may be given in irrigations in the strength of from 1 to 2%.

Ergotin. This drug, which is well known for its hemostatic action in uterine hemorrhage, on account of its vasoconstrictive properties, acts upon the unstripped muscles and, consequently, might appear indicated in hematuria. In point of fact, the bladder is similar to the uterus in its anatomical makeup and like the latter, it contains unstripped muscular fibres. But we know from our knowledge of the pathological physiology of vesical hematuria, that one of the conditions producing hemostasis is to place the organ at rest. Now ergotin excites the unstripped muscle and sets up powerful contractions; it is evident that, under these conditions, it should be without any effect on vesical hematuria, if not even dangerous. Consequently, it is to be proscribed in these cases.

From the study of these various drugs and their hemostatic action we may conclude that gelatine-serum and ergotin should never be employed to control serious hematuria. Calcium chloride appears to me insufficient in its action, while perchloride of iron deserves to be again experimented with and we know from one case at least, that the bladder is tolerant of it, even in a 2% solution. Tannic acid, adrenalin and antipyrin above all, have given most successful results and, personally, I believe that the latter is to be particularly recommended. It goes without saying that these drugs are to be employed only in local application.

But when dealing with a severe hematuria, it should not be forgotten that any loss of time may be a serious matter, and as soon as one has acquired the certitude that medical means are insufficient, one should immediately, and without delay, resort to surgical measures, such as the permanent catheter, aspiration of the clots, cystotomy or cystostomy.

Contributed by the Author to The American Journal of Urology.

HYDRONEPHROSIS IN CHILDREN AND ITS TREATMENT.

By DR. OSCAR ENGLER, Schleswig, Germany.

OF all the surgical affections of the kidney, the treatment of hydronephrosis is undoubtedly the most discussed. Of the methods employed before the introduction of nephrectomy by Simon in 1869, only nephrotomy is considered at the present time. The others, such as massage, simple puncture, or puncture followed by the injection of iodine and other similar methods have been entirely abandoned, partly on account of the uncertainty of their results and partly because of the considerable danger connected with them. Even during the last two decades, with the constantly progressing enlightenment on the etiology of hydronephrosis, the number of therapeutic attempts has increased greatly. I need only mention such methods as implantation of the ureters into a favorable position for relief of obstruction, the folding or reduction in the size of the renal pelvis, freeing the ureteral opening in the renal pelvis and resection of the strictured portions of the ureter. These are, at all events, operations rarely resorted to, particularly on account of the great difficulties encountered, and generally speaking provided, of course, that operative interference seems necessary, the question usually is whether a nephrotomy or nephrectomy is indicated. Here, again, the opinions of different surgeons vary greatly. While some proscribe removal of the kidney on account of unfortunate experiences resulting from nephrectomy, particularly when this is done as a primary operation, others reject nephrotomy which frequently necessitates the performance of a secondary nephrectomy, and on account of the constant improvement in the technique, the results of nephrectomy have become more favorable, so that many prefer to proceed at once radically.

In the last few years, certain surgeons have again advo-

cated primary nephrectomy, naturally, of course, only when one is assured that the other kidney is healthy and carrying out its functions fully and that removal of the kidney is not contraindicated by any other existing complications. Then, again, although occasionally excellent results are obtained by nephrotomy it may be said that the prospects of a permanent cure by this operation can hardly be entertained, and urinary fistula, accompanied by the unavoidable loss of strength and invalidism is a frequent result. Then, too, under these circumstances, a nephrectomy has to be performed later on, this operation being rendered far more difficult on account of the adhesions, etc., resulting from the previous nephrotomy.

The question at present as to the treatment of hydronephrosis is still unsettled.

The conditions giving rise to hydronephrosis in children are somewhat more evident than in the case of the adult. Aside from a few instances of traumatic hydronephrosis, the larger number of instances of this renal affection in children which come to operation prove to be congenital, that is to say, they are usually symptomatically evident during the first few years of life and the causative factor will usually be a congenital anomaly, such as stenosis of the ureter, a too high insertion of the ureter in the renal pelvis and other similar defects.

If we first consider this most important form of hydronephrosis during childhood, it may be said at the start that the congenital type offers an extremely bad prognosis as far as reconstructing the congenital defect is concerned, as has been shown by abundant experience. This is not at all surprising, because the etiological factors, if they can be found at all, can usually not be removed, and, if they can, it is only with great difficulty and a prolonged surgical interference.

From this point of view, then, primary nephrectomy is perfectly justifiable in congenital hydronephrosis. But there is another view point, maintained by many, showing that primary nephrectomy in children is a most favorable operation. Undoubtedly nephrotomy, as far as the operation

itself goes, is, perhaps, less dangerous. S. W. Gross estimated the mortality of nephrotomy at 28%, whereas nephrectomy gave a mortality of 50% and, in a few cases, a complete cure was obtained by the former operation. But very frequently a secondary nephrectomy will, after all, become necessary. In children during their early years, it is very important whether they undergo one or two serious operations and one need only consider the great susceptibility of young children to operative work and especially to the unavoidable loss of blood. So then, if nephrectomy is to be done at all, the primary operation certainly gives much better results than the secondary. In Israel's collection of cases, secondary nephrectomy gave a mortality of 75%, while, when done primarily, this operation only gave a mortality of 10.3%.

Now, in order to show that children, even during the first few years of life may undergo nephrectomy well, and that very good results are obtained when the operation is a primary one, I desire to briefly quote, as illustrations, some cases of primary nephrectomy for hydronephrosis in the young. I will first refer to a few cases of traumatic hydronephrosis and to these I will add instances which were of a congenital nature.

Case 1. (Barker.) Nephrectomy for ruptured ureter and urinary abscess in a child 3 years of age. He sustained a contusion on the right side of the abdomen, after which was noted the discharge of blood from the urethra, this consisting of three small clots. After this the temperature rose a little and soon subsided and the child was discharged as cured. Shortly afterwards he was readmitted to the hospital and, at this time, a tumor was found extending into the iliac fossa and giving rise to all the symptoms of a hydronephrosis. However, the diagnosis of rupture of the ureter, with a retro-peritoneal extravasation of urine, was made, but the question of the possibility of a contusion of the ureter, followed by occlusion of the latter, with the development of hydronephrosis, was also considered. Aspiration of the tumor resulted in a withdrawal of urine, having a specific gravity of 1010 a quarter of one per cent.

albumin and one-half of one per cent. urea. For seven weeks the tumor was evacuated every eight days and then from the twenty-third of October to the nineteenth of November, a drainage tube was inserted so that all the urine could be collected. After the ability of the opposite kidney to properly functionate had been ascertained, the right kidney was removed, this resulting in a complete cure.

Case 2. (Déletrez.) Abdominal nephrectomy for hydro-nephrosis in a child 10 years of age. In this case the patient had fallen three times, once shortly after birth, then again, at the age of 7 and 9 years, respectively. Following the first fall a swelling was noticed in the right inguinal region which, however, disappeared at the end of two years. After the second and the third fall, the child experienced violent pains upon each occasion and this was accompanied by peritoneal symptoms. After the third fall, blood was present in the urine. Déletrez was able to demonstrate the presence of a large swelling, which he diagnosed as a hydro-nephritic kidney and after exploratory puncture had verified the diagnosis with still greater certainty, nephrectomy was undertaken. The cystic kidney contained over one litre of fluid. Cure resulted in a few weeks.

Case 3. (Zeller.) Nephrectomy for traumatic hydro-nephrosis in a child 6 years of age. The patient was run over in October by a heavy wagon, this passing over the region of the stomach while the child was lying on his back. A short time after the injury bloody urine was voided, but, at the end of two days, the urine was again free from blood. Very soon afterward, a hard tumor developed in the right side, which did not change and, according to the report a hard elastic tumor was found below the liver and in size might be that of a child's head; it moved very distinctly with the respiration and by pressure over its anterior aspect, and in the renal region, fluctuation could be elicited. The kidney was removed by an extraperitoneal incision. The patient recovered.

The following cases are of the congenital variety of hydronephrosis.

Case 4. (Thornton.) Cystic kidney removed by abdom-

inal section. A child 7 years of age had shown since the age of 2 years the presence of an abdominal tumor of doubtful character. The urine was always voided in large amounts. A point of fluctuation developed between the umbilicus and pelvis, while an exploratory puncture gave issue to 6 pints of an albuminous urinous fluid. As the cyst had refilled at the end of six weeks, it was decided to remove the kidney through an abdominal incision. The ureter could not be found, but the veins and arteries were tied separately. The patient recovered.

Case 5. (Martin.) Congenital hydronephrosis in a child 2 years of age. In this case the hydronephrosis involving the left kidney was, in all probability, due to an incomplete occlusion of the ureter near its origin in the renal pelvis. The child voided almost a litre of clear urine daily, which was free from albumin. After exploratory puncture of the tumor, which occupied about three-fifths of the abdominal cavity, the child complained of violent abdominal pain and vomiting. The cyst rapidly refilled, so that an incision was decided upon and, as the tumor was found only slightly adherent to the peritoneum, nephrectomy was done. The child was discharged well at the end of two weeks.

Case 6. (Rupprecht.) The child was a boy 5 years of age, who, since birth, had had a very large abdomen and only urinated once or twice in twenty-four hours, but the quantity of urine voided was very large. A more careful examination by palpation and exploratory puncture showed that the affection must either be a hydronephrosis with several pockets, a suppurative process being present in one or more of them, because two different kinds of fluid were drawn off by different punctures; secondly, an intermittently occluded ureter, on account of the varying tension of the tumor, and thirdly, a primary congenital hydronephrosis, because the anomaly in the secretion of urine and swelling of the abdomen, had existed from birth. A radical operation was decided upon in order to avoid the occurrence of postoperative fistula, etc. The operation was performed through an anterior abdominal incision, in order to have

plenty of room to deal with the large sac formed by the hydronephrosis. The operation was easily carried out and only a small portion of the wound surface was contaminated with urine, which the child suddenly voided while the nephrectomy was being done. The operation was perfectly successful and the child recovered. The cause of the hydronephrosis in this case, which was a multilocular cystic kidney, proved to be due to the high insertion of the ureter into the renal pelvis.

In this same paper Rupprecht refers to another case of hydronephrosis in a girl 9 years of age in whom a fistula from the renal pelvis had developed after a nephrotomy had been done, and he points out the long years of invalidism which are to be feared following simple incision of the hydronephrosis. In this case, the child died five years after the nephrotomy and autopsy showed amyloid degeneration of the intestines.

Case 7. (Shattauer.) A boy, 7 years of age, had given evidence for several years of an increase in size of the abdomen. On admission to the hospital the abdominal circumference was 100 cm. On exploratory puncture 11 litres of a reddish fluid were withdrawn, in which traces of albumin were evident. After a short time the cyst had completely refilled so that extirpation of the kidney was decided upon. An incision 20 cm. in length was made from the eleventh rib downwards. The peritoneum was nicked, but the opening was immediately closed with sutures and the entire sac was removed extraperitoneally. The pedicle was tied en masse, the large cavity drained and the incision closed with sutures. The recovery was complete at the end of six weeks.

Examination of the sac showed that the ureter was inserted very high up on the anterior wall of the cyst and was completely permeable. From this it was inferred that the high point of origin of the ureter was probably the cause of the congenital hydronephrosis.

Case 8. (Adler.) A boy, $3\frac{1}{2}$ years of age, had complained for a year of pain in the abdomen, while, at the same time, the abdomen had increased in size. Transperi-

toneal nephrotomy was performed, the walls of the sac being sutured to the abdominal incision which had been made in the linea alba. As a very small amount of urine was passed every second day, showing that the opposite kidney was not capable of performing its functions, nephrectomy was rejected. About six months later the following condition was noted. About half way between the umbilicus and symphysis pubis was a longitudinal cicatrix six cm. in length, in the middle of which was found a fistulous opening, from which, upon pressure, a slightly cloudy yellowish colored fluid escaped. At the place of the left kidney could be felt a hard empty sac extending from the costal border downwards in a slightly convex curve to the above mentioned fistula; it then crossed beyond the middle line to the extent of two fingers' breadth, but could not be definitely outlined. It was found that the right kidney was lying in its normal position, was of normal size and excreted normal acid urine, having a specific gravity of 1025, while the urine issuing from the fistula was cloudy, alkaline and of a specific gravity varying from 1,004 to 1,007. Nephrectomy was undertaken and proved to be extremely difficult for the following reasons. In the first place, the sac was lying completely in an intra-peritoneal position. Secondly, the descending colon could not be demonstrated, so that there was danger of injuring it, and thirdly, the greatest difficulty was found in the fixation of the kidney to the anterior abdominal wall, it being secured there by the previous transperitoneal nephrotomy and thus made it impossible to do an extraperitoneal operation and, given the purulent infection of the hydronephrosis, an infection of the abdominal cavity was greatly to be feared from the escape of the septic fluid. However, the case progressed well after operation and the progress of cicatrization was normal. The intraperitoneal position of the kidney, the abnormal position of the colon and the nearly horizontal course of the ureter, demonstrated in the removed specimen, and a fan-shaped insertion of the renal vessels made it extremely probable that the case was one of a congenital hydronephrosis. At the same time, this case illustrates how

little can be expected from simple nephrotomy in congenital hydronephrosis and, furthermore, how greatly the dangers of nephrectomy can be increased by a former nephrotomy.

Now, in opposition to the instances of nephrectomies already cited, I would like to refer to a case of congenital hydronephrosis reported by von Bidder, in which a conservative treatment was resorted to. The case was that of an infant 18 months of age, a boy, who, other than presenting a somewhat large abdomen, appeared to be healthy. During the second year, the circumference of the abdomen increased to such an extent that it measured 63 cm. at the level of the umbilicus. An analysis of the urine showed that it contained from one to one and one-half grams of albumin per thousand, this fluid being obtained by an exploratory puncture, thus proving that one was dealing with a hydronephrosis of the left kidney. On Bidder's advice, in consultation, Simon's double puncture was to be performed, but, instead of employing the trochar, a double silver needle was used by the house physician, this being pushed through the abdominal wall and cyst. The elevation of the temperature which soon occurred, led the physician to remove the needle, but he could not make up his mind to complete the operation according to Simon's technique. The boy soon died with a high temperature and great loss of strength. Autopsy showed a marked narrowing of the ureter near its entrance into the renal pelvis, which, in spite of its high position, did not produce a total occlusion, but nevertheless, resulted in the production of a hydronephrosis. In the report Bidder states that a radical operation might have prevented death.

On account of the very favorable results occurring in the above mentioned cases, nephrectomy for hydronephrosis in children especially of the congenital type, can be recommended, provided, of course, that the disease involves one kidney only, and that the second kidney exists and is carrying out its normal functions.

Before closing this paper I will report the case of a successful nephrectomy performed for a probable congenital

hydronephrosis which has been recently under my observation.

The patient, a boy, 5 years of age, had had pneumonia in February. After recovering from this affection, the mother noticed that the child's abdomen had become enlarged and was gradually increasing, so that, by the end of March, he was taken to the hospital. It was stated that the patient had always passed urine spontaneously and in sufficient amounts.

Status praesens. A well developed child. In the abdomen a swelling is detected extending posteriorly from the right lumbar region to about the left mammary line; above, it borders on the liver and below it extends to the iliac fossa. It is fairly rounded in shape, its borders are distinctly marked, while fluctuation is evident. On the left, percussion gives a tympanitic sound from the mammary line extending posteriorly. Nothing abnormal could be found in the urine. Temperature normal. Diagnosis: right-sided hydronephrosis.

Operation. Ether narcosis. Left lateral position with sand bags under the left flank. A Bergmann's incision for nephrectomy was made beginning at about the lower border of the sacro-lumbalis muscle from the last rib to the iliac crest, then diagonally outwards and downwards and anteriorly parallel with the anterior aspect of the crest of the ilium and then extending about one finger's breadth above the line of the anterior superior iliac spine. The aponeurosis and fibres of the external oblique were incised parallel with the direction of the latter, then transversal separation of the internal oblique. After the fascia had been incised, much perinephritic fat appeared and after cutting through this the kidney was exposed. An incision about two to three millimetres in depth and about two centimeters in length was made in the walls of the cyst and thus exposed the cavity of the latter, the contents of which was rapidly evacuated. After all the fluid had escaped, the sac collapsed and by pulling on it with one hand and with the other pushing back the fat and peritoneum, it could be brought out of the wound with comparative ease. It was

more difficult when the upper pole of the kidney was reached, because here were encountered the renal vessels including two very large veins, one of them almost the size of the jugular. The ureteral orifice was nowhere to be found. The greatly enlarged renal pelvis, which was partly united to the pedicle, was transfixed several times with a heavy suture, and then ligated in five portions, the upper one containing the vessels. At the distance of about 1 cm. from the ligature the pedicle was cut through and the resulting stump buried. Suture of the various muscular and aponeurotic layers separately with catgut; skin closed with silkworm gut. The operation lasted about one hour; the amount of fluid evacuated from the cyst was between three and four litres.

On the next day, although the patient desired to urinate, he could not void his urine, so it was withdrawn with a catheter. No special cause for this retention could be found, but after operations involving the genito-urinary system, it may be assumed that not infrequently, a retention is due to a temporary reflex spasm of the vesical sphincter. Temperature normal.

The next day the urine was passed spontaneously. The amount of urine voided in twenty-four hours during the first few days averaged only from 400 to 500 cc. and it was very dark and somewhat cloudy. Eight days after the operation the incision was found in good condition when the dressings were changed. The silkworm sutures were removed and, during the entire convalescence, the temperature remained normal. Thirteen days after the operation the patient was discharged.

For the two weeks following, the condition of the patient remained excellent until the fifteenth day, when he suddenly developed a chill. The house physician found a small fluctuating swelling in the upper part of the cicatrix, the skin covering it being hot, red and tense. Temperature 39.5°C . On the next day this swelling was incised under ether narcosis, exposing a superficially seated abscess about the size of a pigeon's egg. A complete cure was obtained in eight days, at which time the patient felt perfectly well.

In this case the hydronephritic sac retained the shape of a greatly enlarged kidney; however, its surface was somewhat irregular, there being numerous various sized nodules and projections, one of which was especially marked on account of its size, and was situated at the lower renal pole. The convex aspect of the emptied, collapsed sac measured, from pole to pole, 22 cm., and in width it was 15 cm. The walls of the cyst varied in thickness at different parts; the thinnest portions were almost like paper, and when held against the light were transparent. The greatest thickness found was 5.7 mm. About two fingers' breadth from the border of the incision into the sac the renal parenchyma began to make itself evident and was found quite intact, excepting where the renal pelvis formed part of the cyst. Consequently the parenchyma had so far disappeared that it was present only in a thin layer, and, naturally, every suggestion of papillae was lacking. The calices were only represented by small depressions in the form of diverticulae, lying on the inner wall of the cyst, and were separated from each other by various sized protruding septa.

Considering the nature of the hydronephrosis in this case, it is to be remarked that the definite cause could not be demonstrated at the operation. Perhaps, however, one would not be in error if it were assumed that we were dealing with a congenital hydronephrosis, because, aside from the general experience that most instances of this affection arise in early life, and whose etiologic factor has been obscure, were finally demonstrated to be of congenital nature, and in my case this pathologic diagnosis would seem to be favored from the fact that, during the operation, no ureteral orifice could be detected in the renal pelvis. In this respect this case resembles the condition found at autopsy in Bidder's case, because no ureteral orifice could be found in the renal pelvis, and it was only after the introduction of a ureteral catheter into the peripheral end of the ureter that its orifice was discovered, and so small that it represented an almost invisible opening. Consequently this was an extreme stenosis of the ureter at its entrance into the renal pelvis. That in our case there was also a stenosis and not

a complete occlusion of the ureter was made more probable from the fact that the hydronephrosis had developed to such large dimensions. Now, if the obstruction had been total, a complete atrophy of the renal parenchyma would have quickly occurred from pressure of the urine, so that, with the cessation of the urinary secretion, an increase in the size of the cyst to any great extent could not take place if the hindrance to the escape of urine from the kidney had been absolute. In this case a portion of the renal parenchyma had remained functionally active and, naturally, it is only under these circumstances that an increase in the size of the hydronephritic sac could have taken place.

GENITAL TUBERCULOSIS

By DR. FELIX LEGUEU

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ESPECIALLY frequent in adults, genital tuberculosis may attack various portions of the genital apparatus, such as the testicle, vas deferens, prostate and seminal vesicles. It makes itself evident by exclusively objective symptoms. It may be an acute epididymitis, suddenly manifesting itself, sometimes following a traumatism or an effort; at other times it is a urethral discharge, appearing without any gonorrheal contagion, showing itself in the form of a serous or grumous pus and coexisting with lesions in the prostate or seminal vesicles. Then, again, it may make itself evident as a chronic tuberculous epididymitis. This latter type is most frequently met with; the tail of the epididymis, and never the head, is always involved. It becomes nodular, and by palpation one can detect a hard nodule on its surface. Usually it is indolent, but, if the disease undergoes a rapid evolution, pain may occur.

No adhesions can be detected, excepting when suppuration becomes menacing, or when it has become established, or when a fistula exists. The vaginalis is often filled with liquid, usually in quite an amount, so that a true hydrocele develops in tuberculosis of the epididymis, but which also may occasionally accompany tuberculosis of the testicle. This latter affection results from a blood infection, attacks the testicular parenchyma, and therein scatters a few discreet tubercles without giving rise to any external symptoms. It is only by splitting open the testicle that these parenchymatous tubercles can be discovered, with the resulting occurrence of the hydrocele, which may be called essential, because the true cause it as yet unknown.

The vas deferens is altered along its course, especially in its terminal portions; above Scarpa's triangle it will be found in the form of a resisting and hard cord, this resulting from

a perideferentitis. A tuberculous prostate is neither tender nor increased in size, but throughout its parenchyma are scattered isolated, hard nodules, which are particularly perceptible on the borders of the gland. The seminal vesicles are particularly affected at their mouths, appearing indurated and as if injected with wax.

Genital tuberculosis remains stationary for many years, or it may take on a suppurating process. The deeply-seated lesions, such as those in the prostate, suppurate with greater difficulty. When suppuration becomes established the entire series of secondary infections, cavities, and fistulae develop. The disease is curable, and it may be said that it represents one of the least serious types of tuberculous infection. In the epididymis and the prostate the foci remain always apparent, but the fibrous tissue, little by little, replaces the caseous masses. In gonorrhea the indurated nodes finally end by disappearing. It must be understood that if the kidney or the lung are involved at the same time the affection becomes extremely serious, but more on account of its generalization than its localization in the genital organs.

Patients afflicted with genital tuberculosis consult the physician under three conditions. In the first place it may be for a urethral discharge, accompanied by loss of flesh. One should commence by eliminating gonorrhea or its derivatives, and, in the second place, one can consider the question of tuberculosis. In other instances a perineal fistula is present, either in the neighborhood of the urethra or in the midst of the perineum. Rectal examination and the introduction of a probe will allow one to discover whether or not the fistula is due to a deep suppurative process in the prostate.

As I have already pointed out, a tuberculous lesion of the testicle may be hidden behind a hydrocele, the fluid collection in the vaginalis being consecutive to the development of an epididymitis, or a central tubercle in the testicle; the latter naturally escapes our ordinary means of investigation. When the hydrocele is very voluminous, if palpation of the epididymis, which is behind, is impossible, the testicle on the opposite side should be examined with great care. A small nodule in the opposite epididymis may be quite enough to

assure the diagnosis. Let me add that rectal examination will reveal coexisting nodules in the prostate.

The diagnosis is surrounded by several difficulties. Sometimes the clinical picture is that of an acute epididymitis, this developing after a traumatism or an effort. This particularity is of great importance, and one should not attribute to the traumatism that which belongs to the tuberculosis. In truth, an orchitis from a strain is an unknown quantity. What one finds is a tuberculous epididymitis which has become acute, following a strain. The same may be said of direct traumatism. The latter might, without doubt, produce a certain degree of congestion, but how could a localization of a traumatic inflammation in the epididymis be explained? The traumatism does not produce the orchitis, such is the conclusion.

When tuberculosis occupies the epididymis the diagnosis should be made between this and the gonorrheal form, a thing which is not always easy to accomplish. I will not refer to syphilis, as no confusion is possible. When syphilis attacks the epididymis it involves the head of the organ. As we have seen, tuberculosis always develops in the tail of the organ. Only tuberculosis and gonorrhea equally affect the tail of the epididymis; consequently it is not the localization, which is the same in both diseases, that will allow one to make a differential diagnosis. One might invoke the latency and indolence which are more special to tuberculosis, but there exist cases of gonorrheal epididymitis which are quite indolent and without any reaction. All gonorrheal epididymitides are not painful, and consequently the symptom of pain cannot be considered as conclusive of a gonorrheal infection, and not of tuberculosis. It has been said that the presence of adhesions favors the diagnosis of tuberculosis, and this is true. But, unfortunately, unless suppuration is present, adhesions do not exist. The lesions of the vas deferens do not throw any more light on the diagnosis; without doubt they are inflamed in tuberculosis, but there is also a possibility of their inflammatory involvement in gonorrhea.

In point of fact, there are only two signs which authorize the making of a diagnosis, and these are the condition of

the urethra and the deep parts. A urethra which does not give issue to a single drop of discharge following the ingestion of irritating liquids, such as beer, such a urethra does not belong to gonorrhea. If a drop of discharge can be obtained it should be examined microscopically for the presence of the gonococcus, and if this organism is not encountered, one is dealing with a tuberculosis. Rectal examination shows nodules of tuberculosis, nodules which do not exist in gonorrhea, and, consequently, the diagnosis is easy.

As to the treatment, it should be entirely medical. The waters of Salies de Bearn and those of Biarritz, beside the ordinary tonic medication, enjoy manifest virtues. Patients treated at these waters show, on examination, that the tuberculous epididymitis is absorbed in a few weeks, and they come back completely cured. Castration, which was formerly recommended, is a detestable operation. It is insufficient, because it does not prevent the propagation of the disease; it is excessive, because it removes a testicle which may possibly be healthy. It is only in cases where fistulae exist that one has the right to interfere surgically by removing the epididymis. This partial operation is advantageous inasmuch as the diseased structures are removed, while by leaving the seminal gland the internal secretion of the testicle still continues. As to prostatectomy and removal of the seminal vesicles for tuberculous lesions, it is very rare, indeed, that one is called to have recourse to such interferences.

ACUTE INVASION OF THE KIDNEYS BY THE BACILLUS COLI.

DR. W. H. Thomson discusses this condition in a paper read before the New York Urological Society (Med. Record, Mar. 21) in a very interesting manner. The commonest occurrence of this condition is of course in typhoid fever.

The state of the intestinal walls in this complaint affords many opportunities for the entrance of this organism into the general circulation. The rule, however, is for this complication to occur only in the later stages of the fever. Sometimes its advent then is marked by severe rigors, the occurrence of which in the course of typhoid fever should always raise suspicions of this invasion of the kidneys and lead to immediate examination of the urine for the presence of this bacillus. During the rigors the aspect of the patient is very serious, as if he were on the verge of fatal collapse. If the patient, however, is young, the prognosis is not necessarily bad; it is otherwise if advanced in years, particularly if fleshy and the rigors are of frequent occurrence. At other times, without rigors, the patient's general symptoms become very unfavorable. If he has not had delirium before, it now sets in. The temperature also becomes very irregular. Suspicion of the invasion of the kidneys by this bacillus should be at once aroused if the urine diminishes. All this was well illustrated in the case of a medical friend with typhoid fever whom I saw in consultation. In the fourth week of apparent beginning convalescence he suddenly became delirious, with a marked rise of temperature. The urine also was much decreased. I recommended his physician to have his urine examined for the *Bacillus coli*; they were found in myriads in his urine. Under specific treatment he at once improved, became rational, the temperature fell, and the bacilli disappeared from the urine. A week afterwards he had a relapse, with a reappearance of the

bacilli, and under the same treatment again improved. Ten days afterward, when his temperature had become normal, he suddenly developed pulmonary edema, to which he succumbed in a few hours.

Another example, and wholly different in its antecedents, is when the invasion supervenes in a patient who has chronic interstitial nephritis. As often is the case in this condition, the patients may have been but little discommoded by their kidney disease and have attended steadily to business. Suddenly, and usually after some indiscretion of diet, they have an attack of gastroenteritis. The kidneys at once show a tendency towards suppression, and if the actual condition is not recognized, so as to be specifically treated, the patients soon succumb. I always dread an attack of so-called cholera morbus in elderly people, and recommend that the state of the kidneys should be immediately investigated.

At other times these patients are suddenly taken with serious cerebral symptoms, passing into coma, with hyperpyrexia. Such fever accompanied by oliguria is very significant, as a brief account of the following case will illustrate. I was called in consultation to see a lady whose physician told me that she had showed some symptoms of renal trouble for a good while, but after partaking of a too full and varied meal she complained of her head, high fever set in, and she soon passed into deep coma, with a temperature of 105 degrees. I gave a favorable prognosis, and, by active treatment, in twenty-four hours the whole clinical picture changed, and in a week she was out of bed.

At other times this invasion occurs in patients who have had chronic ulcerative colitis, and, owing to its illustration of the specific nature of this condition, I would give the following example: I was called to see an old friend of mine, a physician in large practice, and who had often before called me in consultation, but now had been wholly delirious for six weeks. I was told that he was succumbing to a severe attack of acute parenchymatous nephritis, in corroboration of which statement I was shown copies of frequent repeated examinations of his urine by the chief of one of the best equipped laboratories which we have in this city. At the bottom of each page the diagnosis was written

"severe acute parenchymatous nephritis, with much albumin, blood, and casts." On examining the patient I said that, whatever the laboratory diagnosis might be, he did not show a single clinical symptom of acute parenchymatous nephritis. As the patient had more than once consulted me previously for ulcerative colitis, I suspected that his was a case of septic invasion of the kidneys by the *Bacillus coli*, and therefore gave a very favorable prognosis. His physicians could hardly agree with me, but agreed to put him upon the treatment I recommended. The reasons for my diagnosis were, in the first place, that he had not a sign of edema, that his pulse was compressible, and, moreover, that delirium—certainly the long, active delirium he had shown—was rare in parenchymatous nephritis; and if I had suspected that that was the condition I would not have given such a favorable prognosis. Thirty-six hours after the treatment had been begun the comment written at the bottom of the report coming from the laboratory was, "astonishing improvement," "no albumin, no blood, and no casts!" On my first requesting that his urine should be examined for the *Bacillus coli* the report was that they were found in exceptional abundance. A little over a year afterwards my friend, this patient, called upon me, and said he had never felt better in his life and that he was busy at his profession for sixteen hours a day.

I once had a similar development occur in the case of a very severe and prolonged attack of influenza, also in the case of a well-known medical man. When we recall that in the first year of this epidemic (in 1890) in New York we had so many cases of fatal gastritis or of gastroenteritis occur in influenza, this infection doubtless occasionally allows of such an invasion. This patient, after a number of weeks of really prostrating developments of the infection, began rather suddenly to show cerebral symptoms, with diminished urine. I at once had his urine examined for the bacillus and it was found in great numbers. A short course of treatment entirely altered the symptoms for the better.

I do not know of any serious condition in which so much can be done if its nature is only recognized, nor, I may add,

in which the event is so generally fatal if not specifically treated. In each case, however, the diagnosis can be certainly made only by the examination of the urine specially for the *Bacillus coli* and then finding them in great numbers. As the urine is an unfavorable medium for the growth of this organism, the inference is plain that they could not have entered the bladder except by way of the kidneys, because no accidental introduction of them by catheterization or otherwise could account for the immense numbers of these bacilli usually found in such cases. The clinical symptoms of this condition are unlike those of any other kidney derangement. I have not met with a single case of convulsions, but active delirium is common. There is no edema and the pulse is soft. Profound coma soon supervenes in all cases, with hyperpyrexia, and at autopsies the kidneys are then found riddled with discrete collections of the *Bacillus coli*. The specific treatment above alluded to I would briefly outline as follows:

First, a dose of calomel, 10 grains, and compound jalap powder, 40 grains. If the patient is so comatose that swallowing is impracticable, no time should be lost in resorting to the specific medication being administered per rectum, and which is 10 grains of urotropin and 10 grains of sodium benzoate in 4 ounces of water, given in urgent cases every two hours. When the symptoms improve, the doses may be administered by mouth every three or four hours. When it is otherwise allowable, the action of the mercurial purgative may be awaited before beginning with the urotropin. The urotropin is specific in its operation because it is an active poison to the *Bacillus coli*, and, as it is excreted by the kidneys, it promptly destroys this invading organism. Urotropin alone, however, often irritates the kidneys and urinary passages, with symptoms of strangury, but in my experience such an occurrence rarely happens if sodium benzoate is given with it. For the rest, the calomel purgative should be repeated every other night until the kidneys are secreting freely. Meanwhile great assistance will be furnished against the oliguria by frequent enteroclysis with hot normal saline solution at 120 degrees F., or, if that is not sufficient, with hypodermoclysis.

EDITORIAL

THE TREATMENT OF THE ALBUMINURIA OF GOUT.

GOUTY subjects who pass albumin in the urine are oftentimes subjected to an absolute milk diet. Nothing is more unfortunate, because a severe milk diet weakens the patient, sets up digestive disturbances, is accompanied by lactic fermentation and does not cause the albuminuria to disappear. Gouty subjects may take milk, but it should be combined with other nourishment, such as soup, sauces and so forth, but taken alone it has no value.

It is quite erroneous to assume that the albuminuria in gout is due to the presence of a renal lesion. The latter may exist, but only very rarely. Dr. de Grandmaison has recently pointed out these facts in an excellent book entitled "*L'Albuminurie gouteuse*." Without any doubt sclerosis of the kidney may develop in gouty subjects, but, generally speaking, it is absent and out of a total of 60 cases observed by the above mentioned writer, only three presented interstitial nephritis.

The symptoms accompanying gouty albuminuria are totally different from those present in renal sclerosis, because, in the latter, there is polyuria and arterial hypertension. The gouty subject presenting albuminuria presents oliguria and arterial hypotension. These symptoms are quite different simply because the pathogenesis of the two conditions is different.

The albuminuria of gout is a dyscrasic albuminuria, almost always independent of any renal lesion and is due to a purely functional disturbance of the glomeruli of Malpighi. The essential cause of this renal disturbance consists in a liver which carries out its functions insufficiently and allows the albumoses coming from the digestion to pass through it. Under these circumstances urinary analysis not only shows the presence of albumin, but there is an oliguria and lacticuria, oxaluria and

peptonuria as well, all of which chemically characterize gout and the presence of a functional insufficiency of the liver, kidneys and muscles.

The oliguria can be explained by arterial hypotension; radial pressure never exceeds 16 and may even reach as low as 13, 12, 11 and even 10. In itself this sign is quite sufficient to eliminate the idea of an interstitial nephritis which is, above all, made evident by a polyuria and arterial hypertension.

As long as a gouty subject presents arterial hypotension he can recover if he will submit to a severe diet and regular and methodical muscular exercise. The amount of meat eaten should be reduced to the minimum and fatty, young and gelatinous meat should be avoided, because it is too rich in nucleines; consequently no game, highly spiced food, etc., should be given. Such treatment aids in the combustion of the ingesta so that the toxic remains do not accumulate in the tissues.

If a gouty patient with albuminuria presents arterial hypertension, this signifies that renal sclerosis is commencing and that, under these circumstances, the same diet should be ordered, but that it should be still more severe. Meat should be given sparingly and fresh vegetables and fruit should almost exclusively compose the diet. Large quantities of liquids should be forbidden, as these produce vascular plethora, increase the already heightened arterial tension and produce a rapid fatigue of the heart; not more than a quart or a quart and a half of liquid should be taken in the twenty-four hours, and it is for this very reason that a milk diet is bad, because it necessitates the absorption of too large a quantity of liquid.

In the commencement, at the period of hypotension, it produces digestive disturbances and a hydremia which increases the vascular tension. In both cases it should be proscribed as an exclusive alimentation.

Original Abstracts and Translations

AN IMPROVED TECHNIQUE FOR THE PERMANENT CATHETER. F. Schlagintweit (*Zeitschrift fur Urologie*, Vol. 2, No. 4, 1908) uses the permanent catheter, not only after operations, but also in the cases of very painful cystitis, permanent prostatic dysuria, etc. When the patient is able to stand a permanent catheter, which is evident from the first hour, the sedative action of this drainage upon the bladder is wonderful. If the catheter is not well borne at first, a small enema containing morphine, atropine and antipyrine may be injected into the rectum. If then the catheter can be allowed to remain at night, much progress can be made. The technique employed by the author is very simple. It does not involve the use of the bed-pan and the patient can lie in any position without soiling his bed or interfering with the drainage. The patient can even interrupt the working of the catheter himself and connect it again when he is through after going to stool. An ordinary soft rubber catheter is used with a funnel end. The special catheters which are supposed to be self-retaining are not as good because they have metal stylets. Before the catheter is introduced, a disc of red rubber such as is used in closing beer bottles is passed over it. This disc is so arranged that it prevents the slipping in and the escape of the catheter. The catheter is introduced until the disc lies upon the glans and until the regular drainage of urine is secured. The outer end of the catheter is next closed with a wooden stopper, and over this the well known Escat's "retained catheter basket" is slipped, tying the catheter and the disc in place. Into the catheter end a small glass coupling is introduced after the removal of the stopper, and to this is attached a rubber tube which leads out of the bed into a vessel. As any siphon action would cause cramps in the bladder, a permanent catheter should not be provided with any siphon arrangement. On

the contrary, this should be avoided by providing a lateral opening in the tube which drains the urine out of the bed. For this purpose a T-shaped glass connection is made between the tube connecting the catheter with the vessel so that the long stem of the T is connected with an irrigator high above the bed. This will prevent siphoning from the bladder, and at the same time will enable us to use the irrigator for washing the organ if we so wish. When the patient wants to get up from bed he disconnects the tube connecting with the catheter, closes the catheter with a stopper, and when he returns to bed connects the apparatus once more. With this method the urine drains, naturally, drop by drop.



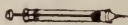
THE ELIMINATION OF MERCURY IN THE URINE AFTER INTRAMUSCULAR INJECTIONS OF BINIODIDE. J. Nicolas and M. Lheureux (*Annales des Maladies Vénériennes*, April, 1908), investigated the elimination of urine in eight patients who had received injections of mercuric biniodide in a watery solution. Over three hundred analyses were made at the chemical laboratory of the University of Lyons. The method used was that of Merget, employing copper and argentic ammonianitrate.

One hundred cc. of urine were first measured, twenty cc. of nitric acid were added and the mixture was boiled for five minutes. If the patient had been taking mixed treatment, the mixture would be seen to emit violet vapors of iodine, which became decolorized after five minutes. The mixture was filtered and reduced to 100 cc.

Next, a flattened copper wire 2 mm. in diameter, was cleaned with nitric acid, washed in water and immersed to the extent of about 2 cm. in the urine. At the end of 24 hours, the copper wire was removed, washed in distilled water and slightly dried with filter paper. It was cleaned carefully above the point of immersion. Over the surface of the wire which had been immersed a deposit of greyish shining material was noted, which was due to mercury. A reaction was now tried with specially prepared paper. This paper consisted of white, glazed stock, rather thick, without lines. A solution of 15% silver nitrate was prepared and into it was

poured drop by drop a solution of ammonia, shaking well after each drop. A precipitate was formed, which dissolved in a slight excess of ammonia. Using a piece of filter paper as a brush, this ammoniacal solution of silver nitrate was spread in a thin layer over the paper and the latter was then placed in a cool, dark place to dry. The paper was cut when dry into rectangles measuring 5 by 4 cm., which were folded in the middle, the sensitized surface inward. The wire, coated with amalgam, was placed in this fold of paper. These little "flags" were then placed between the leaves of a book composed of filter paper and were kept in a cool dark place under a certain amount of pressure. The reaction was very rapid, especially if there was a sufficient amount of amalgam. It is best to allow the process to go on for 24 hours. Each of the two pages of sensitized paper show then a brownish violet symmetrical stain over the amalgamated portion of the copper wire. These prints of the copper wire can be fixed in a solution of sodium hyposulphite, thoroughly washed in water and dried. This photograph of the mercurial vapors may be preserved indefinitely and nothing is more simple than to mount the series of papers in a book, showing the course of the elimination of mercury. The only trouble about this method is that the sensitized paper is not stable and must be prepared freshly. The reaction is extremely sensitive. The method may be applied to the quantitative estimation of mercury. For this purpose we use a standard amount of urine, say 100 cm., and the same dose of mercury, and use the same length of copper wire, immersed for the same length of time. The sensitized paper must also be the same in all the tests. An arbitrary scale, according to the depth of color obtained in the stains, on the sensitized paper was constructed by Soushow. The conclusion reached by the authors of the present article are that intramuscular injections of mercury biniodide are eliminated very rapidly, the metal being found in the urine within the first hour. The elimination reaches its maximum during the sixth hour and maintains this maximum for about twelve hours. The elimination then diminishes until it becomes negative at the end of from two to five days. The larger

the dose injected, the greater the amount eliminated and the longer is the elimination maintained. If the injections are repeated with sufficient frequency, a practically continuous elimination is secured. Potassium iodide does not seem to have much effect upon the elimination of mercury, but in two patients submitted to mixed treatment, constant variations have been noted.



THE THREE-GLASS TEST IN CASES OF PYURIA. When a patient has pyuria, it is not at all an uncommon thing for a mixed specimen of the urine to be sent to a clinical or bacteriological laboratory for examination and report, without any attempt being made by the patient or his medical adviser to assist the laboratory worker by collecting the urine in successive portions. Sometimes two specimens are sent, one of morning urine, and another of that passed later in the day, but it seldom happens that the urine from the same micturition is sent up in separate portions, with an intimation as to which was passed first and which later. There is a fair reason for this in some cases—the examination will be more costly, the greater the number of portions that have to be investigated separately. This, however, is a very small matter compared to the dangerous errors that may be avoided by what may be called the “two-glass test” or the “three-glass test,” as the case may be. (Hospital.)

Sir Henry Thompson, as long ago as 1868, tried to direct the attention of the profession to this matter, but his teaching is less followed than it might be. In his own words:—

“Whenever you want a specimen from your patient to examine, do not tell him to send you a bottle of it, passed in the usual way, or you will get a mixture often of doubtful value. What you require is the secretion of the kidneys, plus only anything there may be in the bladder; but you have also to avoid the presence in it of any secretion which originated in the urethra. Make a point of demanding that the patient should first pass two or three tablespoonfuls through the urethra, so as to sweep out whatever may happen to be there (which may be thrown away, or be put into a separate bottle), after which you will get a pure specimen for exam-

ination—at any rate, one of which you will know the source. You will have the renal secretion, plus only whatever deposit may be produced in the bladder. Suppose the patient has gleet or chronic prostatitis, there will then be a quantity of muco-purulent matter in the urethra. If all this be carried into one vessel with the urine, how will you determine the different products, and decide, by the eye or by the microscope, what has come from the urethra, what from the prostate, and what from the kidneys? You cannot do it; but if you get rid of the source of error by flushing the urethra, so to speak, that is, by passing the first two or three tablespoonfuls into a wine-glass, while all that follows is passed into a separate vessel, such as a tumbler, you will have in the latter a sample of urine that can be relied upon for examination. If I felt disposed to indulge you with gossip, I could tell you stories of the gravest blunders committed by not attending to this simple point. I can at all events say that I have more than once known a patient treated for pyelitis whose only complaint was a profuse discharge from the urethra. He had sent the urine twice a week to his adviser for examination, in a bottle scrupulously made clean for the purpose, and because a quantity of pus was found in it, was treated during some months for pyelitis, having some symptoms corroborating that view. At length another observer discovered that all the pus came from the urethra, for when the urine was passed in two glasses, the first glass contained all the thick matter, and the remaining urine was clear and healthy; so that, finally, the pyelitis soon disappeared under local treatment of the urethra. Purulent matter originating in the urethra is often mixed with specimens of urine sent for examination, in which case it may be erroneously estimated as albumen by the chemical test; or as pus under the microscope may be supposed to have its origin from the deeper passages.”

Sir Henry Thompson therefore advocated the two-glass test. It is important to remember, however, that the last small portion of urine that is expelled usually brings into action the levator ani and compressor urethræ muscles and that these often squeeze out purulent material from the pos-

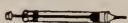
terior urethra or from the prostate, or both, supposing there were any posterior urethritis or prostatitis in the case. It would be wise, therefore, to collect separately the last few tablespoonfuls of urine as well as the first, and discard them if the specimen to be examined is required to represent the urine from kidneys, ureters and bladder only. In other words, the three-glass test is advocated in cases of pyuria if errors are to be avoided. Some observers go even further than this, but it is sufficient for the present to lay stress upon the main issues only, and to urge that the urine be collected in these cases, not in mixed bulk, but in three portions, which, for the sake of argument, we may style A, B and C.

Portion A consists of the first ounce or two of urine, together with any pus which may have been present in the urethra.

Portion B consists of the main bulk of the urine, less the first ounce or two and the last ounce or two, and represents the condition of the urine as it is in the bladder.

Portion C consists of the last ounce of urine, together with any pus that may have been expressed from the posterior urethra or from the prostate by the squeezing action of the levatores ani and the compressor urethræ muscles.

If portion A contains pus, and portions B and C do not, there is probably a superficial urethritis, but no cystitis and no pyelitis. If portion A contains pus, portion B contains none, and portion C contains pus, there is probably not only a superficial urethritis, but also a deep urethritis in the posterior urethra, and probably prostatitis, but no cystitis or pyelitis. If portions A and B contain no pus, but portion C does, the lesion is probably confined to the posterior urethra and prostate—a chronic posterior urethritis and prostatitis, but no cystitis or pyelitis. If portions A, B and C all contain pus, there is certainly a suppurative lesion in the bladder or in the kidneys, or in both, and there may or may not be urethritis or prostatitis as well.



SOME NEW DATA ON THE PHYSIOLOGY OF THE TESTICLE AND THE PROSTATE. N. SERRALLACH and MARTIN PARES (*Annales des Maladies des Organes Génito-Urinaires*, 1908,

No. 4) contribute a report on the results of their experiments on the physiology of the testicle and of the prostate. In addition to the formation of semen and of the internal secretion recognized a long time ago, the testis, according to these authors, secretes another substance which, for want of a better name, is styled the "X-secretion." The latter invades the organism and produces in the spinal cord and in the sacral sympathetic an irritation which at first causes paresis of the bladder and later contraction of the neck of that organ and of the external sphincter. The presence of the X-secretion can be detected at a very early age, in fact, before the formation of semen has begun. The amount of x-secretion produced increases, however, when the subject enters into the sexual period of life. The secretion of this substance seems to be intermittent and possibly it depends upon the congestion of the urethra and prostate. During the sexual act, the elaboration of the x-secretion is at its maximum. As yet the authors have not made any experiments to determine the source of this x-substance. Judging from the studies of Loisel on the internal secretion of the testis, it is possible that the cells of Sertoli are the point of departure of this internal secretion which acts upon the general organism. This substance, after having been secreted by the testicle probably penetrates into the general circulation through the venous system, because, after it had been introduced into the femoral vein of a dog, it produced its typical physiological action. While it is carried by the blood to the different organs of the body, it seems to have a selective action upon the spinal cord and the sacral sympathetic. The x-substance has two exactly diametrically opposed effects. One is depressant while the other is stimulant, and both may act at the same time.

Whenever the secretion of the x-substance is lacking, or whenever there is an excess of this secretion, a condition of functional disease may develop in the genito-urinary system. The authors claim that certain neuroses of the bladder which hitherto have escaped definite classification, are due to disturbances in the secretion of this x-substance. Whenever the x-substance is secreted in insufficient amounts, that is,

whenever the testicle does not functionate properly in this respect, there may be an incontinence of urine in childhood, which disappears at puberty, when the secretion of this element more becomes abundant. In other individuals urinary incontinence may continue through life owing to the continued absence or insufficiency of this substance. There are various degrees of incontinence which depend upon the variations in the secretion of the x-substance. The internal secretion of the testicle also seems to be the cause of hitherto unexplained frequencies of urination.

Another group of disturbances results from the overproduction of the x-secretion. While the insufficiency of this element is characterized by frequency of micturition and by a loss of control of the sphincters, an excess of the x-secretion, on the other hand, produces difficulty or arrest of micturition. The authors have shown that the sexual act produces an increase of the x-secretion. Individuals who indulge in sexual abuse suffer from a hypersecretion of "X," and in many cases (priapism), their erections are so frequent that micturition is difficult and even impossible. Yet the abuse of the genital organs gradually leads to a functional inactivity, and then the x-secretion becomes diminished, so that ultimately frequency of micturition, etc., develops. The acute retentions of urine, which occur without definite organic changes and which appear after abundant meals, the abuse of liquors, exposure to cold, etc., are due to spinal influences produced by the hypersecretion of the x-substance.

The authors conclude from the work set forth above that the administration of the x-substance is indicated whenever an insufficiency of testicular secretion exists, provided, no organic changes are present in the bladder or the nerve centres. One of the conditions in which the x-substance is useful is nocturnal enuresis when it exists as an independent affection. The preparation which the authors use is a glycerin extract, prepared by macerating testicular pulp in equal parts of glycerin. The remedy is administered by mouth.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M. D., Editor.

VOL. IV.

NOVEMBER, 1908.

No 11.

Contributed by the Author to The American Journal of Urology.

THE FORMATION OF CALCULI AFTER PROSTATECTOMY.

By DR. E. LOUMEAU, Bordeaux, France.

IT is the almost unanimous opinion of surgeons that prostatectomy is the best means of preventing the recurrence or the production of calculi, by abolishing the fundus of the bladder and by making lithiasis in those who have undergone the operation as rare as among women.

This opinion has unquestionably much truth in it, but it is too absolute. In reality, calculi are far from being as uncommon after the removal of prostatic hypertrophy as one would suppose. And it is to warn surgeons against making too optimistic promises to their patients, and also to remind them of the means in our possession to prevent the formation of calculi, that I consider it my duty to report a few very significant personal experiences from which it will be easy to draw a practical conclusion.

Without mentioning cases analogous to the one published by Leon Imbert which deals with phosphatic calculi developed around silk ligatures in a patient operated on four years before by the perineal rout;¹ without desiring, moreover, to insist again on the rather common appearance of secondary calculi in the fistulous tracts of certain patients operated on for hypertrophy by the perineal and suprapubic routes, I will limit myself to summarizing my experience with three patients who suffered from calculi as a result of prostatectomy.

¹ *Léon Imbert*—Une Complication Eloignée de la Prostatectomie—Lithiase uretale. *Assoc. française d'Urologie*, Paris, October, 1907.

NOTE—Dr. Loumeau's excellent paper has been in our possession for several months, but on account of the editor's absence from the United States, its publication has been unduly delayed.

The first case was that of an old man of 70, for a long time suffering from gravel, and operated on in 1900 by the hypogastric route for the extraction of six uric-acid calculi. Two years later new bladder troubles broke out about which he came to consult me in January, 1903. At that time he was troubled with complete chronic retention with very painful calculary cystitis. Perineal prostatectomy performed May 18, 1903, allowed me to remove at the same time a phosphatic vesical calculus the size of an almond. Recovery progressed normally, but left the patient with a permanent secondary recto-urethral fistula. Although the bladder could be entirely emptied without the use of the catheter and without leaving any residue, the urine remained cloudy, coming simultaneously through the anus and the urethral canal and mixed with gas. Three times subsequently phosphatic vesical calculi were formed which I removed by lithotripsy, but the local infection, determined by the presence of the fistula, finally became complicated with a generalized septicemia which carried off the patient in May, 1907, without permitting me to use any new measures for the cure of the fistula.

My second patient was operated on September 7, 1905, at the age of 76, for prostatic hypertrophy with complete chronic retention complicated with secondary calculi and with a very painful cystitis. I performed subtotal transvesical prostatectomy by successive enucleation of the two lateral lobes through an incision made at the apex of each of them, care being taken to leave intact the prostatic urethra. At the same time I removed two phosphatic calculi from the bladder which was drained by means of Freyer's tube and cicatrised normally, emptying thenceforth completely, without the least residue. At the end of eighteen months there appeared rectal and vesical tenesmus, complicated six months later by frequent and very urgent and painful desire to urinate, with acute pains caused by the slightest motion, and occurring at times even without appreciable cause. In view of this condition, resembling in all respects the pitiful state of the patient before the prostatectomy, and in spite of the fact that catheterization, in itself very painful, had not

revealed to me the presence of vesical calculi, I felt not the slightest doubt of the existence of a secondary lithiasis produced by lingering vesical infection and complicated with cystitis. Another suprapubic incision, made the first of last April, enabled me to remove two large ammonio-magnesium phosphate calculi of very regular geometric form. One, cuboid, measuring 2 cm. on each side, occupied the upper portion of the retracted vesical cavity; the other, of a triangular prismatic form, and measuring two and a half centimeters in height, was placed beneath the first and had its apex directed inferiorly towards the neck, which was itself much depressed and which, as well as the rest of the bladder, presented no trace of my prostatectomy. The patient at the present time has almost entirely recovered from the effects of this second surgical interference, and will, I hope, by the aid of the measures relating to urinary antisepsis which I shall impose upon him, be insured against the formation of new recurrent calculi.

My third patient was 66 years old when I operated on him on September 1, 1906, for hypertrophy with incomplete chronic retention and vesical infection. In his case I performed a total transvesical prostatectomy, removing in a solid mass through a small fray of the bladder wall at the apex of the right lobe, the entire hypertrophied mass, including therein the prostatic urethra. The wound was drained by a Freyer's tube and the steady progress of recovery was interrupted only by the persistence of a small hypogastric fistula which closed definitely at the end of ten months. Four months after the operation I began to feel at the base of the canal a rough calculus, and six months later I could make out with the sound a crepitant mass, rather large, filling the cavity previously occupied by the prostatic hypertrophy. But strange to say, from the first, this accumulation of secondary calculi did not in any way inconvenience the patient, who was able to work, exert himself to fatigue, walk the whole day long in the vineyards, make even thirty kilometers per day on foot, without suffering any inconvenience either in general or during the course of micturition, which was easy, painless, and emptied the blad-

der completely. On the 6th of last April, at my request, the patient came to see me at my clinic. He looked fresh, rosy, full of animation, and had a good appetite, and continued, without the least inconvenience, his hard work in the fields. He urinates about every two or three hours during the day, and only once during the night. An elbow-sound, No. 18 (Charrière), introduced as soon as the subject has urinated, does not draw forth any residue, but it strikes, always at the base of the canal, a rough and crepitant mass which would seem to occupy the old prostatic region. The patient, who is in excellent condition, does not wish to hear of the operation which I propose to him to relieve him of his calculi, and returns to the country, promising me, however, to come back, should anything ever happen to disturb the perfect harmony of his present state of health.

These three cases of post-operative calculi are the only ones which I have been able to observe among the 76 patients on whom I have thus far performed prostatectomy. This makes 1 case out of my 30 perineal prostatectomies, and 2 cases out of my 46 hypogastric prostatectomies. Despite their relative rarity, the facts have a clinical significance which is not without interest for the surgeon, first because it demonstrates the possible existence of a painful and little known complication following prostatectomy, and then, because it imposes upon the patients the employment of a therapeutic measure of the greatest preventive usefulness.

It should be noted that urinary infection, in the absence of a bladder fundus or of any retention whatever, or even of a lithiasis of renal origin which is capable of forming deposits and of increasing in the bladder,—that urinary infection alone may be sufficient to produce secondary calculi in subjects operated for prostatic hypertrophy. But the symptomatology of these calculi, common after perineal prostatectomy, can assume an entirely different course after transvesical prostatectomy, depending upon whether the latter was *total* or only *subtotal*. This distinction which to my knowledge has not yet been pointed out in the semeiology

of calculi, becomes clear from the above study of my last two patients, whose calculi presented two entirely dissimilar clinical pictures.

In the case of the first patient, on whom a *subtotal* prostatectomy was performed (which did not affect the integrity of the prostatic urethra) the secondary post-operative calculus formation was accompanied by a cystitis fully as painful as the one from which he suffered previous to my interference. Again, of the two calculi which he presented, one, of a cuboid shape, occupied the upper part of the bladder; the other, triangular prismatic, was impacted by its pointed extremity against the neck of the bladder which was depressed in the shape of a funnel.

In the case of my second patient, on the other hand, on whom a *total* prostatectomy was done, with removal of the prostatic urethra imbedded in the midst of the hypertrophied gland, notwithstanding the fact that the calculi were rough and multiple and formed a large crepitant mass they were accompanied by no pain or trouble during micturition, and remained passive while the subject was walking or working. They were absolutely quiet and latent.

Whence arises this difference in the symptomatology of the calculi of my two patients? It can only, I believe, be explained by the entirely distinct anatomic conditions which obtain in the post-operative prostatic region after the *subtotal* as compared with the *total* suprapubic prostatectomy,—anatomic conditions which, though still very rarely and inadequately described, have been well brought to light by autopsies of hypogastric prostatectomies published to date.

From these facts, just as Legueu and Chirié¹ rightly observe, and as I myself wrote in 1906 in "*Annales genito-urinaires*," de Guyon,² it follows that after suprapubic prostatectomy the operative prostatic seat can assume two very different aspects according as the case is one of *subtotal* prostatectomy with preservation of the prostatic urethra, or of

¹ Legueu and Chirié—L'état anatomique de la vessie après la prostatectomie de Füller-Freyer.—*Soc. anat., Paris*, octobre, 1905.

² E. Loumeau—Operation de Freyer suivie d'autopsie.—*Annales des maladies genito-urinaires*, 15 avril, 1906.

total prostatectomy involving the simultaneous ablation of the gland and of the prostatic canal.

In the first case, as Freyer has shown, and as I myself was able to establish on the operating table in the very first of my suprapubic prostatectomies, the walls of the posterior urethra, after the ablation of the prostate, widen out until they rest on the outside against the walls of the prostatic seat, in the manner of a *funnel*, the superior wider portion of which forms the continuation of the neck of the bladder and the summit of which, directed downwards, is continuous with the membranous sphincter of the ureter.

In the second case, on the contrary, to which correspond very closely both the description of Legueu and Chirié and the observation on post-mortem specimens made in support of what I published two years ago, the bladder and the post-operative prostatic seat form together a cavity in the shape of an *inverted flask*, as is shown very clearly in the accompanying engraving taken from the work of mine which I referred to above. The superior more capacious expanded portion corresponds to the bladder, the inferior smaller one, to the prostatic region; the orifice of communication between them is none other than the neck of the bladder, and the lower extremity of the flask blends as did the top of the funnel of which I have previously spoken, with the urethral sphincter.

In both cases it is clear that the prostatic cavity, emptied partially or totally of its contents, forms a portion of the vesical reservoir, and that this—whether it terminates inferiorly in a funnel or in a second ampulla, forming, as Küss¹ calls it, a sort of additional prostatic bladder—has its physiologic neck henceforth removed to the level of the membranous sphincter which is really the true sphincter of the bladder, and the integrity of which is indispensable for the continence of those who have undergone the operation.

From these facts, based on the actual examination of post-operative anatomical specimens, it is easy to understand what must have taken place in the case of the two patients on

¹ G. Küss—*Soc. anat., Paris*, mai, juillet, octobre, 1907.

whom I performed suprapubic prostatectomy and who developed secondary calculi. In the first case, the shape of the two calculi placed one above the other, was moulded on the whole after the funnel-like form presented by the inferior termination of the vesical cavity; moreover the very painful cystitis provoked by these calculi can be readily explained by the fact that the vesical mucosa, by being continuous with that of the urethro-prostatic funnel, enveloped them completely.

In the case of my second patient, on the contrary, the calculi were formed and accumulated in the sub-vesical cavity representing the inferior spherical space of the inverted flask, well figured in the accompanying plate. Here, however, there is no longer any direct continuity between the mucosa of the bladder wall and the walls, quite differently constituted, of the post-operative prostatic seat: the latter possessing neither the delicate sensibility nor the physiologic or pathologic reactions of the vesical cavity itself. Hence such perfect tolerance, indifferent to walking and to all the natural movements, of this infra-vesical seat crammed with calculi. Hence the striking contrast which results between the scant, and so to say, negative symptomatology of the calculi—absolutely extra-vesical—in this case, and the painful and violent symptomatology of the calculi—truly intra-vesical—in the other case.

Having pointed out—with too much complaisance, perhaps, for which I hope to be excused—this interesting semeiological distinction between the two varieties of calculi likely to attack patients after transvesical prostatectomy, I will limit myself to pointing out, in the form of brief conclusions, the useful suggestions which follow the preceding clinical observations.

If the formation of calculi is indisputably of much rarer occurrence among those who have undergone prostatectomy than before the operation was performed, there is nevertheless no doubt that such formation is not impossible and is far less exceptional than one would suppose. Hence it is the duty of the surgeon to exert all his efforts to prevent the occurrence of that post-operative complication against which

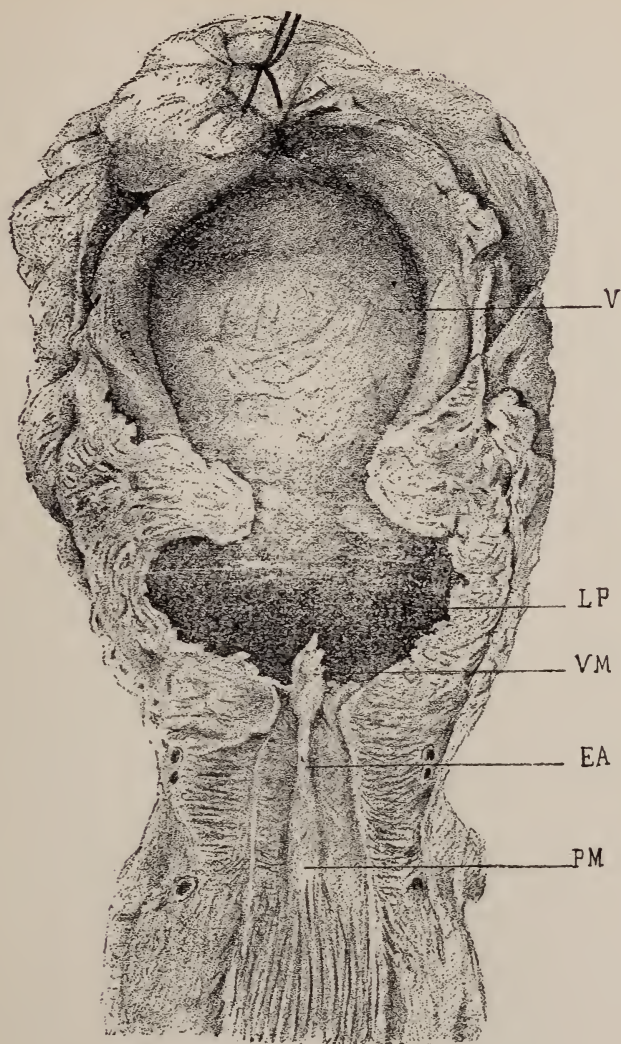
prostatectomy cannot more absolutely guarantee the sufferers than lithotomy or lithotrity.

If the urine is limpid, the patient, under the surgeon's very strict instruction ought, from time to time and at regular intervals, to observe the manner in which the bladder empties, to see if there is no residue whatever, and in case there is, to empty the bladder with care once or several times a day by means of the catheter. For there is no doubt that the vesical function is not of a uniform, even, and constant nature, but that the urinary reservoir can at times empty completely, while at others, under the influence of a more or less permanent lassitude of the organ, it can present a partial retention of variable degree, susceptible in its turn to bring on a vesical infection and to cause secondary calculus formation.

If the urine is cloudy, or more especially if it is purulent and fetid, it will be necessary as long as this change, indicative of urinary infection persists, to combat the infection either by medicinal urinary antiseptics or by injections or vesical instillations continued until the complete disappearance of septic symptoms. In the cases of fistulæ analogous to those described in the account of my first patient it will be necessary to use direct measures aiming at the cure of the fistulous tracts or the best means possible to diminish their rôle in infection.

The old man, now 87 years old, on whom I performed, October 26, 1903, a transvesical prostatectomy, and who was the first patient operated on and cured in France by the Fuller-Freyer operation, had to be cut three times subsequently for recurrent vesical calculi developed in his retroprostatic fundus. After the prostatectomy, though the complete chronic retention from which he had suffered for a dozen years had entirely disappeared and his normal vesical function was perfectly re-established, I took care through fear of new lithic concretions and with a solicitude which appears to me to-day much less exaggerated than it did at first, to recommend to him the habit, from which he has never since deviated, of catheterizing himself and of washing his bladder daily. It is now four and a half years after

FREYER'S OPERATION FOLLOWED BY AUTOPSY (Dr. Loumeau). Reproduced from nature—about 5-7 the natural size.



V. Vesical Cavity. L. P. Cavity resulting from the simultaneous ablation of the prostatic urethra and the hypertrophied prostate. V. M. Veru montanum with the opening of the right ejaculatory duct. E. A. The anterior extremity of the Veru montanum. P. M. The membranous portion of the urethra.

the operation and no trace of calculi has made its appearance in his case.

I believe that, without urging such great caution in all cases, it is best to recommend to every patient a scrupulous surveillance of his bladder as regards both retention and infection. Surely the, in my opinion, indispensable necessity of these precautions dictated by the most elementary prudence, will not attenuate in any way, but will rather enhance, the grateful and very legitimate enthusiasm which prostatic surgeons and urologists both ought to feel for the admirable surgical conquest which prostatectomy really is. It will indeed accomplish what ought to be the earnest desire of us all,—the rendering more definite and more perfect the already brilliant results of this operation.

Contributed by the Author to The American Journal of Urology.

INTRA-VESICAL OPERATIONS WITHOUT KNIFE OR ANAESTHETIC, WITH SPECIAL REF- ERENCE TO THE REMOVAL OF BENIGN TUMORS.

By DR. HENRY MEYER, San Francisco, California.

IN¹ January, 1906, I read an article before the Pacific Coast branch of the American Urological Association, entitled "Intra-Vesical Operations with the Aid of the Cystoscope." At that time it was pointed out how it was possible to perform certain operations within the closed bladder under the guidance of the eye and without the use of the knife. It was shown that benign tumors such as papillomata and polypi could be readily and successfully removed from the bladder with the hot or cold snare after the method of Nitze, and that cauterization with the electric cautery could be performed in the bladder as well as the crushing of small and medium-sized calculi; also the removal of foreign bodies, all with the operating cystoscope, without any anaesthetic whatever in most cases, and with the local use of cocaine in other cases. At that time I also described my original methods of operating in the closed

Read by invitation before the San Mateo County Med. Soc., May 18, 1908, and before the Sonoma County Med. Soc., June 11, 1908.

female bladder in a more simple manner than with the operating cystoscope, and showed how one could use the sharp curette of my own pattern for curetting ulcers, and also how one could make direct applications of nitrate of silver solutions or any form of liquid medication, in any strength desired with the aid of my instillation syringe to any spot in the female bladder, with the bladder distended with air, without spreading the same over large areas, all with the aid of the cystoscope and under the guidance of your own eye. I also showed how one could remove foreign bodies from the female bladder most easily with a pair of forceps of special design, and also how benign tumors could be removed from the female bladder with hot or cold snare, such as I will show you now; all with the aid of the cystoscope. The advantage one obtains in using the instruments last described and shown to you (in the female bladder) lies in the fact that on account of the shortness and comparative straightness of the female urethra they are much more easily used and more simple than the operating cystoscope, because the cystoscope is not moved, while one is operating, but is merely used to see what you are doing and is held stationary; being held and focused on the part operated on with one hand, while the other hand manipulates the operating instrument. You will thus see that in the female, we can readily use two instruments at once, as shown in Fig. o. Since the time of reading that article, there have been made certain small instruments (by Loewenstein of Berlin), viz., forceps for removing foreign bodies; sharp curette the angle of which can be changed at will; snare which can be used hot or cold, and scissors, all of which are used by being passed through the catheter canula of the Brenner cystoscope; which I will now demonstrate to you. In the first place, in order for all or any of the instruments of which I have spoken to be useful in the hands of the operator, he must be a skillful cystoscopist, and on this point I can not lay too much stress; he must be accustomed to intra-vesical manipulations, otherwise such instruments as these are both useless and dangerous. The operator must be skillful with his hands as well as with his eyes. For a clumsy manipulator, these instruments are entirely out of place. Being

able to catheterize ureters does not constitute cystoscopic skill; as it requires much greater skill to perform a good cystoscopic examination than to catheterize ureters. Almost anybody can learn to catheterize ureters in a very short time, but to be able to examine the bladder walls and properly

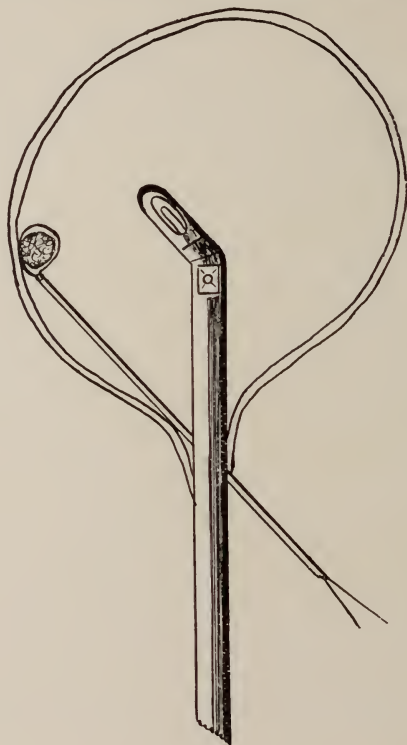


FIG. O.

Fig. o.—Shows my method of using two instruments at one time in the female bladder.

interpret the various pathological pictures, requires much more experience; and that is exactly what is necessary in order to use the instruments, the workings of which I will demonstrate to you to-night. The instruments which I will describe and operate to-night have been put to use and abandoned by some operators, but in no instance can it be said that the instruments were at fault. In cases where operators have abandoned these instruments, the fault invariably was with the operator. Since these instruments and combinations of instruments are used with the most excel-

lent results by some operators, it is the most positive proof of their value and practicability; but we must remember that working through the cystoscope is the most delicate of all operative work, and for that reason only a few people have become expert in following out these valuable methods. I believe more men should become familiar with this work by devoting more time to it. I am sure it would be a great

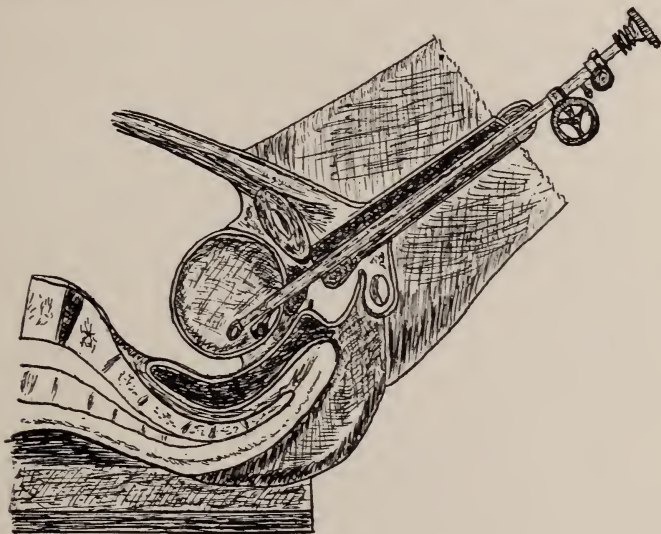


FIG. 1.

Fig. 1—Shows calculus in the grasp of the lithotrite of the operating cystoscope.

aid to suffering humanity. We must also remember that it is impossible to remove every tumor and every stone by this method, but tumors which are pedunculated or have a base which is not very broad, such as many of the papillomata and polypi, are readily removable in this manner with the hot or cold snare and the cautery. Again, all vesical calculi can not be removed in this manner, but we can crush those as large as seven-eighths of an inch in diameter, and in cases where the calculus is larger, they can be crushed with the regular lithotrite. It has been argued that calculi can be removed with the ordinary lithotrite by the sense of touch entirely, without leaving any fragments behind, and I most heartily agree that they can. Figure 1 shows a

calculus in the grasp of the lithotrite of the operating cystoscope. I am sure that calculi can be removed as easily and completely by the sense of touch as with the aid of the sense of sight, and yet it is a great source of satisfaction to be able to see the operation. There seems to be a general impression among people who do not perform litholapaxy, that recurrences are more common after this procedure than after supra-pubic cystotomy, in reply to which I have the following to say: Taking the experience of Freyer as an example, he reports 610 litholapaxies in patients varying in age from one and one-half to ninety-six years. These 610 operations occurred in 599 individuals, the disease having recurred in nine instances and twice in one instance. In all the cases of recurrence, long intervals had elapsed between the first operation and the recurrence of symptoms of stone, and Freyer believes that these were all simple cases of recurrence of stone from constitutional causes. In eight other instances of recurrence, the patients had previously undergone lithotomy, three of them twice. In his experience, recurrence of stone is as frequent after lithotomy as after litholapaxy. Dr. Keegan, who had an enormous experience in the treatment of stone in India, where the disease is very common, has had the same experience as to recurrences, viz., that recurrences after litholapaxy have not been more frequent in his hands than after lithotomy. In my own experience, which has not been large, I have had no recurrences. This means that we have every reason to expect perfect results when litholapaxy is properly carried out, especially with the operating cystoscope, when there is no excuse for leaving any fragment behind.

I will now enter into the subject of the removal of tumors more fully. The patient should be thoroughly cleansed externally, and the bladder washed with a four per cent. solution of boric acid until the fluid returns perfectly clear when 150 c. c. are allowed to remain in the bladder; since all the operations on tumors, including cauterization, are done in a fluid medium. The instrument should be thoroughly sterilized in the usual manner, except the optical apparatus, which should be thoroughly cleaned with tincture of green

soap and then with alcohol, after which it should be allowed to rest in a 5 % carbolic solution or a 5 % formalin solution for one hour. I desire to show the different sizes of beaks used for operating on tumors in different situations in the bladder. Figure 2 shows how impossible it is to reach the papilloma on account of the shortness of the beak. Figure 3 shows how impossible it would be to reach either of the papillomata situated as they are, on account of the beak being too long. I also desire to say that snaring of small

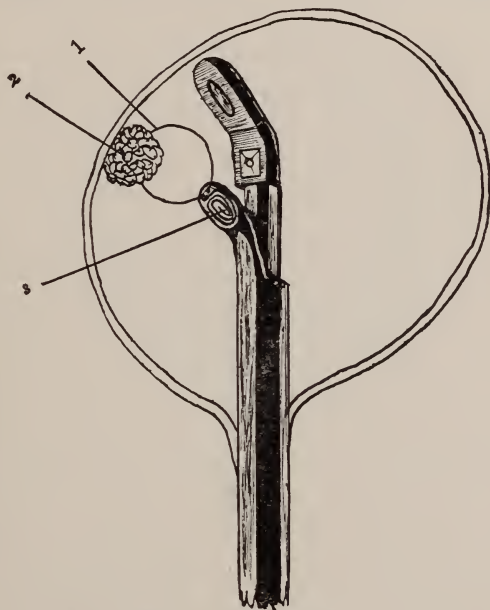


FIG. 2. After NITZE.

Fig. 2—Shows how impossible it is to reach the papilloma with a short beak on the operating cystoscope. 1—Snare. 2—Papilloma. 3—Cautery on short beak.

growths is readily done at the pedicle, while large ones must be done piecemeal at several sittings; the pieces removed being expelled through the urethra. It is surprising what large pieces can be expelled in this manner. After complete removal of the tumor, the stump is cauterized with the cautery situated on the beak, by pressing it against the surface of the stump and turning on the current at white heat. This cauterization is not superficial as might appear, but great care should be exercised as one can readily burn through the

bladder wall; more particularly is this the case on the superior and lateral walls, while at the base the wall is thicker and the danger of such an accident is much less. The pain as a result of the cauterization is very inconsiderable, the patient only complaining of a slight pricking sensation. It requires only a very few seconds to destroy the pedicle at its attachment, and the proper degree of heat in the cautery should be

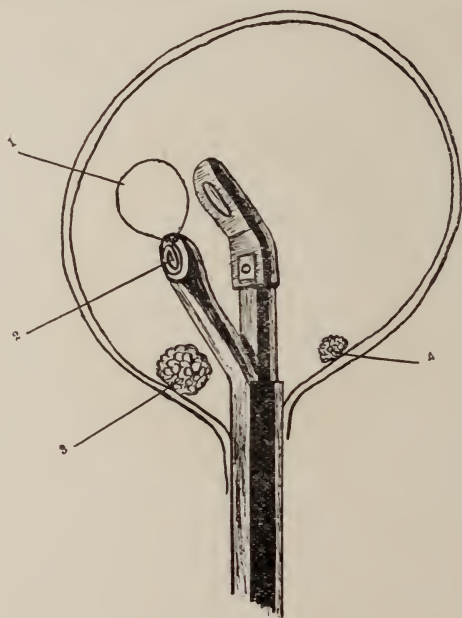


FIG. 3. After NITZE.

FIG. 3. Shows how impossible it would be to reach the papillomata with a long beak on the operating cystoscope. 1—Snare. 2—Cautery on long beak. 3, 4—Papilloma.

ascertained before inserting it into the bladder. This is done by wrapping a wet cloth around the beak, leaving the platinum cauterizing surface exposed and utilizing sufficient current to produce a white heat, when the current is turned off at the cautery button on the cord, while the rheostat handle is allowed to remain stationary at the point necessary for the production of white heat. After cauterization, the appearances will vary with the degree of such cauterization; and where deep cauterization is performed, the surface becomes elevated like a button and after the slough is thrown off the surface will look very red, and this swollen

and reddened condition was a source of great anxiety to Nitze in his earliest experiences. This entirely disappears, however, and later it becomes impossible to detect the original location of the operation by cystoscopy. Figure 4 represents three different degrees of cauterization and a small papilloma which has not been cauterized. Nitze operated on over 150 cases of bladder tumors in this manner, the patients varying in age from thirty-two to seventy-nine years, and only lost one case as a result of the operation.



FIG. 4. After NITZE.

FIG. 4. Showing three different degrees of cauterization, while below is seen a small papilloma which has not been destroyed.

In his cases, as in the great majority of all cases of bladder tumors, the characteristic hemorrhage was the first symptom complained of. Only in rare cases do they cause mechanical obstruction leading to examination of the patient. Only a few of Nitze's 150 cases were in women and all were cured by this method but three. One of these three cases proved to be carcinomatous; the second was a woman from whom a large tumor had been removed by the suprapubic method; large masses were found in the bladder, and it was the first case in which the new method had been used and at that time the instruments had not been perfected, and the results were unsatisfactory. In the third case tumor masses were removed twice by *sectio alta*, and a great many masses had recurred. In this case, notwithstanding the fact that frequent and long operative sittings were made, and that many large tumor masses were removed, they re-formed so quickly that he

was finally compelled to give it up. As I have said, the size of these tumors vary, and they may range from a small polyp to tumors the size of an orange, and the number of sittings required depends upon the size of the growth. Frequently only two sittings are required, one to remove the growth, and one to cauterize its base. In some of Nitze's cases twenty or more sittings were required, and even in these cases the patients recognized the advantages of the new method and thankfully accepted it. Not one of Nitze's cases withdrew from the treatment until completely cured. There were no unpleasant occurrences during any of the treatments, except in a few cases the bleeding was pronounced. All of his cases with the exception of the three cases before mentioned, and the one which died, were cured and discharged without the least evidence of cystitis. Casper tells us that the intra-vesical method of removing tumors has often been assailed; that it has been branded by some as dangerous and useless; personally, I believe it is very dangerous and useless in the hands of those who pronounce it such. This only means, however, that men sometimes attempt that which they know nothing of, and will not take the trouble to learn, and expect good results. Casper's experience comprises about thirty cases, and as a result of such experience he has the following to say: That the removal of tumors with the hot or cold snare is not dangerous; that he has not seen a single accident follow, and has never seen any dangerous hemorrhage; in fact, he says that it is astonishing how little blood is lost and that he has a series of perfect cures to record.

In a recent discussion bearing upon papilloma of the bladder at the First Congress of the German Urological Society, held at Berlin in October, 1907, Casper said he had seen numerous cases of benign papillomata, which had recurred after cystotomy, in a malignant form, and stated that the results were better after the removal of these tumors with the operating cystoscope, and he now advises that patients presenting themselves with neoplasms in the bladder which are clinically benign, should be operated with the operating cystoscope. Kapsammer corroborated this statement.

Zuckerkindl, in this discussion, also advised operating papillomata with the operating cystoscope. Morton dismisses the subject by merely saying the following: that a considerable amount of experience in the technique of cystoscopy is necessary in order to use the operating cystoscope, but by its use it is possible to remove many bladder tumors without doing a cutting operation. Many authors do not even mention this valuable method of operating. In most cases a cystoscopic examination will give a fair idea of the time required to bring about a cure, and after a cure is perfected, one can not determine the original location of the tumor by cystoscopy. Only very seldom and much less frequent than after *sectio alta* is a recurrence noted. In only three cases was Nitze compelled to do some work in after years, *i. e.*, removing recurrences, and in three cases the small new growths sprung from the bladder walls in situations far removed from the site of the original operations. These remarkably good results can be accounted for by the fact that papillomata are often multiple, and those which are very small are often overlooked in the open bladder; while these same small growths are easily observed through the cystoscope with the bladder in a state of distention.

We now come to the possible complications which may occur during and after the removal of tumors by the intravesical method, and the following are the only ones which need be mentioned.

First. Hemorrhage.

Second. Cystitis.

Third. Febrile reaction following chill.

Hemorrhage is really the only complication of any importance whatever, and while one must admit the possibility of severe hemorrhage, it is gratifying to know that in Nitze's and Casper's experience alarming hemorrhage has never occurred. As long as the urine is free from clots, the hemorrhage is not alarming, no matter what the color of the urine is. When bleeding is great, clots will appear. It was Posner who first pointed out the fact that it requires but a relatively small amount of blood in the urine to give it the

appearance of pure blood. To show how unimportant the bleeding usually is after the intra-vesical method of operating, I will say that such patients are allowed to walk or ride and attend to their daily business after an operation. It is understood, however, that bleeding patients should be under observation. As long as a patient is passing urine spontaneously, though mixed with fluid blood, one need not have much concern about the outcome. These patients recover rapidly as soon as the bleeding ceases. But, should the bleeding become great, the patient is put to bed; but as long as such a patient can pass urine spontaneously, the washing of the bladder with hot or cold water or astringent solutions should be avoided, as experience in these cases shows that the bleeding is apt to be kept up or even aggravated by any intra-vesical interference. It is only where the patient can not pass urine that instrumentation should be resorted to. Should hemorrhage occur, which seems dangerous to life, it may then be necessary to open the bladder and tampon with gauze and use intra-venous or subcutaneous injections. While the possibility of such serious bleeding should not be overlooked, it is comforting to know that these measures have never been found necessary in any case thus far reported. Water should be given liberally to these patients before and after the operation to dilute the urine, and thereby assist in the prevention of clot formation.

Cystitis—If no cystitis exists before the operation, it will rarely be found to occur as a result of the operation if care is taken in matters pertaining to asepsis; but where cystitis exists before the operation, it usually remains until the patient is cured of the tumor. It is only in rare cases that acute bladder symptoms develop. Should pain and strangury develop, opium or morphine in suppository should be used. Should cystitis exist or develop, urotropin or salol should be employed; but washing of the bladder for the cure of cystitis is not recommended. If cystitis exists after all the tumor is removed, then boric acid or mild nitrate of silver solutions are indicated.

Rigors and febrile reactions.—These are much more rarely seen after these treatments than one would imagine, but if

they should occur after an operative sitting, then one gram of quinine should be given to such a patient before the next sitting, which will almost certainly prevent a recurrence of chill. When we take into consideration the great number of sittings which must have been had with the 150 cases of Professor Nitze, it must be acknowledged that the results obtained were strikingly favorable.

I will now briefly discuss the merits and dangers of the intra-vesical method, versus *sectio alta*. From what has been said, it is evident that *sectio alta* is accompanied with greater danger to life; we are dealing here in most cases with a general anaesthetic and often a prolonged anaesthesia. The intra-spinal or the Schleich methods may be resorted to, but in most cases a general anaesthesia is produced, and is probably the best method of procedure in cystotomy unless some contra-indication to its use exists. Following this is the possibility of shock. Then we encounter the danger of pneumonia as a result of the anaesthetic, or a hypostatic pneumonia, particularly in the aged, which may kill the patient. Then we have the period of convalescence, which at best is about two weeks and often much longer.

By the intra-vesical method the only possible source of serious danger is hemorrhage; but it is only in very exceptional cases that it even reaches a degree of importance.

When we stop to consider that by the intra-vesical method of operating, recurrences are rare, and that Nitze only lost one of his patients as a result of the operation, and many of his operations were done before the instruments had reached their present state of perfection, it must be acknowledged that *sectio alta* does not offer the advantages to the patient which are offered by the use of the operating cystoscope. By the intra-vesical method the treatment is often completed in a few days, during which time the patient is up and around as usual, attending to his business and enjoying the usual pleasures of life. Only in difficult cases is the patient under treatment as long as he is convalescing after *sectio alta*. Then again after *sectio alta* fistula is not rare, under which circumstances months are often required for healing to take place, which can not happen after the intra-vesical

method. I also desire to say that the intra-vesical method is not applicable in cases of malignant infiltrations; and severe cystitis, decided contraction of the bladder, and tendency to severe hemorrhage may prevent the successful carrying out of the intra-vesical method. Again very large tumors and particularly where they are multiple, greatly add to the difficulty. Generally speaking, the smaller the tumor, the easier the operation and the less the danger.

Taking everything that has been said into consideration, it is evident that the intra-vesical method is applicable in most cases of non-malignant tumors. No narcosis, no shock, practically no pain during the sittings, recurrences less frequent than after *sectio alta*, the patients follow their daily occupations.

Now, if we consider the advantages from a humanitarian standpoint, it must be a source of satisfaction to any surgeon to know that he has saved his patient from the shock of a severe and often bloody operation, and a consequent sick-bed of often long duration, which you must all admit are of great importance to the sick individual. In my paper of 1906 I described some illustrative cases operated on by myself with the operating cystoscope. I could present a few more now, but it is my intention to present a series of facts rather than histories of cases; but will add that I have removed calculi, tumors, and have performed cauterization in the bladder with perfect success, and have met with no mishaps. With these few remarks, I will proceed to demonstrate all the uses to which the operating cystoscope can be put.

EDITORIAL

THE CHANGES IN THE HEART AND VESSELS IN BRIGHT'S DISEASE.

AS is well known, Bright was the first to point out the frequent occurrence of cardiac hypertrophy in renal disease, and particularly of the left ventricle, without valvular disease. He considered the altered condition of the blood acted as an irregular and unusual stimulus to the heart directly, or that it stimulated the small vessels to contraction, thus affecting the heart indirectly by calling forth greater exertion on its part. Johnson and others confirmed these observations and considered the cardiac hypertrophy due to thickening of the walls of the small arteries.

With regard to the frequency of the occurrence of cardiac hypertrophy, an analysis of a large number of cases shows that it not only is present in chronic interstitial nephritis, but also, though less frequently, in chronic parenchymatous, and even in some cases of acute nephritis, as, for example, in the scarlatinal type. As to the relative frequency of its occurrence in the various forms, there is much difference of opinion, no doubt because the dividing line between the various types is not very distinct. Increase of blood pressure arises in acute cases before cardiac hypertrophy can be demonstrated. The hypertrophy occasionally only involves the left side of the heart, sometimes both sides, but mainly the left, and in contracted kidney it, at the beginning, affects only the left ventricle. In secondary contracted kidney there is also only hypertrophy of the left heart, and often the right heart is even atrophied. In contracted kidney simple hypertrophy occurs unless indeed such circumstances are present as lead to secondary cardiac dilatation, such as temporary or permanent interference with the nutrition of the heart, such casual condition arising much later in the disease in contracted kidney than in parenchymatous or arterio-sclerotic lesions.

In parenchymatous nephritis the general impairment of

nutrition favors dilatation, and eccentric hypertrophy is obvious. In sclerotic kidneys the cardiac muscle is impaired by decrease of the coronary arteries, while in true contracted kidney the hypertrophy precedes the changes in the vessels. The thickening in the arteries that occurs in the renal vessels may possibly be the result of inflammatory changes and do not differ from those found in chronic inflammatory processes elsewhere, but naturally in the arteriosclerotic form they are primary and the cause of the affection.

Gull and Sutton described a hyaline fibroid change in the walls of the small arteries affecting the intima and the adventitia and a hyaline change in the capillaries. These changes they consider the cause of the renal affection, because they found in cases of cardiac hypertrophy the same changes in healthy kidneys. The appearances that these authorities have described are in all probability artefacts due to faulty histological technique, as all coats of the vessels are generally considered to be thickened. The cause of these cardiac and vascular changes and their relation to each other is a matter of difficulty, but experiments have been performed on animals to ascertain the effect produced by excluding part of the renal tissue from the circulation, but the results obtained have been so much at variance that no conclusions can be legitimately drawn. The frequency of cardiac hypertrophy in nephritis makes it probable that some connection exists between these conditions, and it is found that in other conditions of the kidney involving loss of parenchyma, such as hydronephrosis, congenital absence of the kidney, or occlusion of a ureter, cardiac hypertrophy is frequent, and where it does not occur it is probably due to the general state of low nutrition not allowing it; and in fact loss of renal tissue is generally followed by hypertrophy of the heart.

Two opinions have been held as to the causation of cardiac hypertrophy, the one attributing it to certain physical conditions, the other supposing a certain altered chemical composition of the blood. It has been supposed that the aortic pressure is increased, and so the heart made to do more work, by the destruction of numerous small vessels in

the kidneys, or by compression of the vessels by inflammatory products. Undoubtedly in nephritis the blood does meet with increased resistance in its passage through the kidney, but this could hardly cause increased pressure in the aorta, because ligation of both renal arteries is powerless to do this. It has also been supposed that the pressure is increased on account of the diminished excretion of fluid by the kidneys, but in contracted kidney the water excretion is generally increased, certainly not diminished and, even if it were, the vascular system is capable of accommodating itself to even a greatly increased quantity of fluid.

Another explanation on physical grounds is that the compression of vessels by serous effusion causes hypertrophy by increasing the work of the heart. This explanation might be valid in cases of nephritis with ascites, but not in contracted kidney, where the cardiac hypertrophy is most frequent. Gull and Sutton supposed that the hypertrophy did not arise from the renal affection, but that both resulted from diseased vessels which they considered the primary affection, but, although this is quite true of the arterio sclerotic kidney, it is not so in the contracted form, where the cardiac hypertrophy comes on in many instances only when the disease has been present for some time.

Certain authorities have endeavored to explain cardiac hypertrophy in contracted kidney as resulting from the blood charged with excrementitious material on account of the nephritis, this stimulating the small arteries to contract and thus affecting the heart. The result is hypertrophy both of the heart and of the muscular coat of the vessels, but hypertrophy of the muscular coat of the arteries does not always occur and if it did occur in the kidneys, the amount of blood going to them and to the urine would diminish instead of increasing, as is the case. Consequently these theories do not cover the facts and they do not explain the hypertrophy that occurs in the right ventricle and auricle. There is some experimental evidence that the retention of nitrogenous metabolic products is an irritant to the vascular system, because injection of urea into the blood causes increase of pressure due to spasm of the small arteries. Nat-

urally, this spasm is only temporary, but repeated attacks may cause cardiac hypertrophy. And what is true of urea is also true of other urinary substances, and although a large quantity of urea was used in these experiments, it is possible that other substances in small quantities may have a large effect.

It has been pointed out by Senator that in acute nephritis and in the chronic parenchymatous type, the vessels and the heart are markedly irritated by metabolic products and, if this irritation continues, as it does in chronic cases, a contraction of the vessels occurs, sometimes with thickening, and also general hypertrophy of the heart due to the chemical irritation, but more in the left than in the right, because the former has to overcome the contraction of the vessels. In contracted kidney, on the other hand, the irritation is less, but, being continued, it leads to some contraction of the vessel and so to hypertrophy of the heart.

Nephrolysins are also believed by some to cause hypertrophy, but rabbits, whose ureters were tied on one side, lived from two to eight weeks according to Earl. Very frequently, they showed a marked hypertrophy of the left ventricle, which was the more remarkable, as they did not survive very long, so that, besides the production of isolysins and autolysins, there was also this alteration in the heart. Again, if the serum of a normal rabbit is injected into the veins of a dog, the blood pressure is unchanged, but, if heteronephrolytic serum from a rabbit be injected, the blood pressure is markedly increased, this being due to contraction of the peripheral vessels. Earl questions whether the effect on the heart is produced by the contraction of the vessels or by a stimulation of the muscle, and this problem remains unsolved.

Original Abstracts and Translations

RENAL AND URETHRAL CALCULI COMPLICATING OR SIMULATING APPENDICITIS.

DURING the past few years Dr. John F. Erdmann has seen a series of patients with renal and urethral calculi, each either complicating or simulating appendicitis. (*Med. Rec.* March 14, 1908). Several of these were so confusing in their symptom complex as to require lengthy observation and the use of all the modern appliances and physiological, etc., analyses to arrive at a satisfactory diagnosis. In fact, in one of these cases the symptom complex was such that a chronic appendix was diagnosed by several prominent surgeons and medical men, himself included, and one medical diagnosis only was made of calculus. Each side was correct, as was proven by two subsequent operations.

Naturally our difficulty in diagnosis arises only in the slow cases of appendicitis and in the types designated as interval, in which no typical acute attack has ever been evidenced. On the contrary, only those cases of stone presenting slight evidence of impaction, or slight to no marked urinary, etc., symptoms are mistaken for appendicitis. It may be rather a coincidence that in the author's series of patients all had some definite macroscopical appendicular evidence and evidenced some abdominal history in addition to that of pain and tenderness in the McBurney area.

Diagnosis.—Differential diagnosis in those cases characterized as interval, recurring, or chronic appendicitis is only to be definitely reached by a close urinary examination followed by radiography, and occasionally by urethral examination with the waxed catheter or bougie. While in the acute variety, when history points to the possibility of calculus, the association possibility must be fully weighed and all factors closely analyzed for a dual disease.

Pain.—In the great proportion of stone cases, no matter

what position the calculus occupies, from the kidney to the urethral insertion into the bladder, either one or combinations of the following painful areas are present: Testicular, penile, and inner surface of the thigh (G. Crural), while an additional, and this the confusing factor, pain is frequently elicited by pressure in the so-called McBurney area. This latter symptom may be due either to a reflected pain from stone in the hilum, or, as in several of the other cases, when the stone is impacted in the pelvic portion of the ureter near the spine of the ischium. This pain is to be differentiated from that of an appendicular one by the fact that rigidity of the abdominal muscles is not usually present. That relaxation of pressure, Blumberg's sign (*i.e.* suddenly removing the palpating hand) is not followed by the pain usually seen in acute appendicitis. That pressure pain is not usually increased in a line toward the umbilicus, as in appendicitis, but may be so in a line toward the inguinal canal following the course of the ureter. That coughing and deep respiratory pain as seen in appendicitis is unusual in calculus cases.

Recently the author removed a gangrenous appendix from a young man of twenty-one years old, whose onset symptoms were characteristic of an appendicitis, but whose subsequent ones were typical of stone. He states that he vomited at the onset, but subsequently his pain, which had been umbilical, became testicular, with retraction of the testicle and scrotum, that he had sharp pain in his glans penis, and also complained of some urinary symptoms. Urine analysis was negative, and upon anesthetizing him on the third day of the disease, twelve hours after he was first seen, a mass was made out in the line of his right spermatic cord abutting upon Poupard's ligament.

The onset in calculus colic is not usually accompanied by the generalized abdominal, epigastric, nor umbilical pain that we see so often in appendicitis. Vomiting may be present in both, although present in greater frequency in appendicitis, and as a symptom is only a factor when taken with others as corroborative in a chain of symptoms that become positive guide posts to either disease.

Elevation of temperature, usually present (one might say always, if taken by the rectum) in all acute and subacute appendicular invasions, is not present in calculi cases except there be an infective process in the kidney, etc.

Pulse.—This factor can only be relied upon when taken in series with vomiting, temperature, etc. While it is true that marked acceleration usually accompanies acute cases, it is also true that the difficulties in diagnosis arise in the recurring, interval, etc., types and in these the pulse is relatively of no assistance.

The previous history must be carefully weighed in arriving at a conclusion of either of these diseases. When one obtains a history of previous gastro-enteric difficulties, such as constipation, flatulence, sense of weight in the abdomen after eating, difficulties in digesting certain articles of food to such a degree as to cause the patient to shun them, a sense of weight in the right lower quadrant requiring the occasional placing of the hand to the side to adjust one's self as it is often expressed, then distinct and positive appendicular disease must be considered.

Pain in the back, loin, groin, inner surface of the thigh, urethra, testes and penis in the male, and vulva and urethra in the female, with occasional frequency of urination definitely points to a possible renal calculus.

Finally for the exclusion of appendicitis or for the dual diagnosis of appendicitis and stone, the urine and its channels must be carefully examined. The microscopical evidences in urine analyses that weigh in the diagnosis of possible stone are the presence of blood, crystals of oxalates and urates in excess, and epithelial elements from the hilum and ureters.

Blood may be present in the urine in cases of appendicitis due either to a toxemic nephritis (acute), or to some associated condition, as acute nontoxic and chronic nephritis, or floating kidney, etc. Blood without other renal elements, and in the absence of other pathological lesions of the bladder, urethra, etc., is the best diagnostic factor of stone we have, barring the evidences of a definite shadow in a radiograph or the scratch marks, made by contact with the stone,

found upon a waxed ureteral catheter or probe that has been introduced into the ureter.

Cystoscopy.—In stone in the ureter, the cystoscope usually shows a definite and diagnostic change in the mouth of the ureter upon the affected side, characterized by redness and eversion or thickening. Should the stone be in the ureteral orifice it may be seen as a dark object in or protruding from the ureteral opening.

Radiography.—No better diagnostic means is at our disposal than the use of the x-ray, as in practically all cases the shadow of the calculus is seen if the patient has been submitted to an expert radiographer. Failures in radiography are due to the subject being old and feeble and suffering from calcareous degeneration. Failure is also likely in too fat subjects and some few cases of uric acid or urate stones, although according to Dr. Caldwell these latter varieties, *i. e.* the uric and urate stones, are usually depicted on the plates in the lean or moderately developed patients. In the cases where the symptoms point almost definitely to the presence of calculus, and no shadow is seen upon the plate, it is necessary to examine the urinary channels. Cystoscopy for a picture of the ureteral orifice and the use of the waxed catheter or bougie into the ureters.

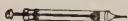
Stones simulating appendicitis are more likely to be found in that portion of the ureter between the pelvic brim and a point just below the ischial spine, although in one case the spot pain was distinctly McBurney after the appendectomy, and the second x-ray showed the stone in the terminal portion of the ureter.

Operation.—The method of approach in calculi considered in this paper depends upon the position of the stone.

When, as most usual, the stone is in the portion of the ureter stated above, it is a decidedly simple matter to approach it either by the transperitoneal route through a Deaver or Kammerer incision, removing the appendix, palpating the course of the ureter and finding the location of the stone. Then by a narrow extraperitoneal dissection from the outer margin of the incision one rapidly reaches the site of the stone, the ureter and stone being held trans-

peritoneally and pushing upwards. Then through the retroperitoneal dissection the ureter is incised over the stone, the stone expelled and the ureteral wound sutured or not, a small drain put down to the trauma in the ureter. The peritoneum is then sutured and the muscles and skin sutured to the emergence of the drain. There is no necessity of suturing the wound in the ureter as on several occasions the author left it without suture. In two of such cases absolutely no typical leakage occurred.

The author prefers the transperitoneal localizing method as it is rapid; one can hook the fingers under the ureter and push it up without contusing it as is done with the usual instruments required in the retroperitoneal method. In the retroperitoneal method one must make a very long incision and dissect up a large amount of the pelvic and abdominal anatomy before arriving at the site of the stone. When the stone is situated high in the abdomen or is in the hilum of the kidney, the incision is either the oblique lumbar or the incision of Israel. One need not hesitate in either of these operations, provided the renal association is not infective, to explore the appendix through a nick in the peritoneum, and remove it, as it is readily found even in the usual incision of Edebohls for nephrorrhaphy.



PROSTATIC APHORISMS.

By G. FRANK LYDSTON, M. D., Chicago.

1. Prostatic enlargement arises from many causes. The term "enlargement" expresses merely a mechanical condition.

2. Inflammation due to infection or traumatism, or both, is the most frequent cause. Neoplasms come next in order of frequency.

3. The most frequent "infection cause" is gonorrhea. This acts in two ways, first, by inducing acute or subacute inflammation; second, by inducing chronic inflammation and hyperplasia.

4. The chronic inflammation may be very insidious and apparently cause little or no trouble until the patient is past middle life.

5. Chronic prostatic hyperemia from sexual irregularities and excesses is a frequent cause of prostatic enlargement later in life. This etiologic condition I have termed "prostatic over-strain" (Text-book on Genito-Urinary Diseases).

6. Transpelvic infection by the colon bacillus is not infrequently the cause of prostatic enlargement. Obviously, the condition primarily is one of inflammation,—acute or chronic.

7. Prostatic enlargement may be caused by calculus in the prostate. The corpora amylacea are not true calculi. The "true" variety forms in a prostatic pocket communicating with the urinary way. Residual urine and the deposition of urinary salts enact the same role here as elsewhere. I have in my possession a stone removed from one of my cases weighing nearly eight-hundred grains. These stones form very rapidly, the case in question developing within eighteen months.

8. The true senile prostate is an atrophied organ. The prostate is a sexual, not a urinary organ, and as its function wanes its structure shrinks.

9. The fallacious idea that senility causes prostatic disease is based on the fact that the symptomatology of the disease begins in advanced life. The causes and the beginning of the process date far back, but the condition is purely mechanical and of slow growth and symptoms are slow in developing—often there are no symptoms until the urethra is encroached upon.

10. Prostatic enlargement in men past middle life usually inevitably increases, but massage and instillations relieve the "border line" cases in which fibrosis or adenomatous change is not yet marked.

11. The chief conditions found in operating on the enlarged prostate are: First, simple adenoma; second, adenofibroma; third, simple fibrosis of varying degree; fourth, carcinoma; fifth, sarcoma (rare).

12. Primary carcinoma of the prostate is not infrequent. When the male sexual organs are more carefully supervised by the expert, carcinoma will be found with increasing frequency.

13. The treatment of prostate enlargement should be, first, palliative where safe, e. g., in cases in which chronic inflammation is the essence of the disturbance; second, operative in progressive cases.

14. Attacks of retention in prostatiques are an imperative indication for prostatectomy.

15. In relatively young subjects vasectomy offers a moderate prospect of relief. It is safe, and prostatectomy may always be done later, if required.

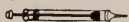
16. In relatively young subjects with slight symptoms operation should not be hastened. The surgeon should grant the patient as long a period of sexual activity as may be without danger.

17. The ideal operation is perineal prostatectomy, but cases arise in which the high or the combined operation is preferable.

18. The surgeon with a short finger can do better work from above than from below.

19. No operation can convert an old man's pathology into that of a young man, hence unsatisfactory results must occasionally occur.

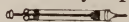
20. Operations in which the prostate is depicted as pried "baseball" fashion out of a median incision in the perineum are commercial surgical fakes, pure and simple. The man who is fooled by such fakes is ignorant of anatomy.—(St. Paul Med. Jour.)



GONORRHŒAL PHLEBITIS AND THROMBOPHLEBITIS OF THE VEINS OF THE PENIS. Payenneville, of Rouen, (*Annales des Maladies Vénériennes*, April, 1908), summarizes five cases of this rare condition. He points out that this phlebitis is often mistaken for a lymphangitis. Usually the superficial veins of the penis are involved, rarely the deeper veins. The two cases reported by the author as personal observations concerned, first, a phlebitis of the superficial dorsal vein, and the other, of the veins running along the frenum and ending in the superficial dorsal.

This form of phlebitis is a complication of acute gonorrhœa and usually occurs towards the twentieth or the twenty-

fifth day of a rather intensely acute attack. Other complications, cystitis, epididymitis, prostatitis, are also present. Infection may take place through the general circulation, or else by continuity. The symptoms consist in the appearance of a hard cord along the upper surface of the penis. When the superficial dorsal vein is involved it can be felt distinctly under the skin. The deep dorsal, when involved, is felt with difficulty. Sometimes, instead of a cord, there is a small nodule. The skin may be reddened, like in a case of lymphangitis. Usually the patient complains of an intense pain. Soon the prepuce begins to swell and the penis is in a state of semi-erection. All the veins of the penis are very much swollen and prominent, owing to the development of collateral circulation. When the lesion affects other veins than the dorsal vein, the picture changes somewhat. Instead of a cord, there is usually a nodule of the size of an ordinary lead shot, resting upon a large patch of deep induration. It is interesting to note that this nodule remains at the level of a kink in the affected vessel. In some cases, as in that reported by Batut, gangrene of the penis occurs as a consequence of the phlebitis. The only condition to be differentiated is lymphangitis. Usually the latter gives a longer red streak, which branches out into various directions. Lymphangitis also gives a more diffuse induration than phlebitis. It is probable that many cases of phlebitis are not recorded because they are mistaken for lymphangitis.



EXCEPTION TO COLLES' LAW. INFECTION OF A MOTHER BY HER SYPHILITIC CHILD. GAUCHER (*Annales des Maladies Vénériennes*, March, 1908, page 195) reported the following case to the French Society of Dermatology and Syphilography: A woman of 23 years of age entered the Saint-Louis Hospital on July 29, 1907, with two typical hard chancres on the right breast, with an enormous swelling of the axillary glands and the roseola. She brought with her an infant of nine months, showing the signs of hereditary syphilis, which had developed a month previously. At birth, he presented pemphigus of the soles and palms. At six months, he had bronchitis and a sero-purulent coryza with

nasal obstruction. He then had eczematous patches upon the right groin, which disappeared within ten days, but a number of large furuncles appeared in that region. At his entrance into the hospital, he had a characteristic look with fissures and mucous patches about the lips, and a variety of eruptive spots on the skin, together with crusts in the scalp. There was slight strabismus* and the skull was atypical. The child had never been nursed by a strange woman. The treatment consisted for the mother of injections of sodium benzoate in doses of 2 centigrammes for 15 days. Then for six days, Dupuytren's pills were administered. The treatment for the child consisted in the administration of 15 drops of a solution of mercury lactate, three times daily for five days. Later, when some green diarrhea appeared inunctions were used. The two patients were discharged on August 20th. The chancres in the mother had become cicatrized and there were no other symptoms. The child still had some pustules, but had improved.

REPORT OF THE COMMISSION ON GREY OIL. LAFAY (*Annales des Maladies Vénériennes*, March, 1908) reported the results of the investigations of the French commission charged with the improvement of the formula and dosage of grey oil. The commission recommends that there should be but one form of grey oil, namely, that containing 0.40 grammes of mercury per cubic centimetre. As regards the excipient to be used, the Commission proposes the following formula:

Purified Mercury.....	40 Grammes
Anhydrous Lanoline.....	26 Grammes
Official Vaseline Oil.....	60 Grammes

This formula, which gives a volume of 100 cc., furnishes an oil containing 0.40 grammes of mercury per cubic centimetre.

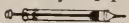


PLASTIC INDURATION OF THE PENIS. OTTO SACHS (*Archive f. Dermatologie und Syphilis*, Vol. 85, No. 1-3) reports an interesting case of plastic induration of the penis, in which he made a careful examination of the affected

tissues. The patient was a man aged 47, who had had a syphilitic chancre of the prepuce in 1878. He was treated by means of inunctions and has had no symptoms since. He was married and had no children and his wife had always been well. Six months before admission, he noticed a hard nodule of the size of a lentil upon the left side of the dorsum of the penis. He suffered pains at the time of erection and particularly during the sexual act. The nodule constantly increased in size. On admission, the mass was found in the left corpus cavernosum and was from 2 to 3 mm. in thickness with a cartilaginous consistence, smooth and with well defined borders. In the middle part of the right corpus cavernosum there was a nodule of the size of a bean, from a thick cord 2 or 3 cm. in length passed on toward the symphysis. The skin was everywhere normal and mobile. The mass formed part of the corpus cavernosum. During erections, the indurated regions became more prominent and the organ was twisted toward the right, whence the difficulty in coitus. There was no pain on urination and the urinary stream was normal. The patient was operated, the nodules were removed and he made a complete recovery, but two or three months later, similar tumors appeared in the corpus cavernosum. Since the operation, the patient was unable to practice coitus. His erections were very painful and incomplete.

The nodules, when examined, were hard and their cut surfaces looked like tendon tissue. One of the nodules presented in its central portion a thin plate of bone, which had to be decalcified in order to examine it microscopically. The histological examination showed that these nodules originated in the tunica albuginea and that they were composed largely of fibrous tissue. In the nodule which contained bony tissue, there were typical bone cells and a gelatinous marrow. Plastic induration of the penis is an affection with an obscure etiology. It arises usually in the septum or the fibrous tunic of one of the corpora cavernosa, usually upon the dorsum of the penis. No inflammatory changes occur as some authors claim. The nodules have often been taken for gouty deposits. According to Horowitz, this plastic induration is

due to an arterosclerosis of the veins and arteries of the penis. Others regard as a manifestation of gout, and analogous to Dupuytren's contracture. According to Waelsch, the formation of new connective tissue begins in the blood vessels, particularly in the veins. He thinks that there is a phlebitis or periphlebitis of the dorsal vein or the deep vein. The affection has nothing to do with syphilis, nor is it a result of traumatism. It is most frequent between the age of forty and fifty. The prognosis is bad, for we do not know of any treatment which will cure these nodules, save a surgical operation. In the case reported, the operation was successful in curing the patient temporarily, but he had a relapse three months later. Internal treatment does not give better results than external applications. Injections of thiosiamin did not produce any appreciable results.



DR. PAUL PILCHER gives the following outline of the treatment of cystitis (*Med. Record*, May 23):

In the treatment of all cases, the removal of the underlying cause is of primary importance; we cannot expect to have a permanent recovery from cystitis if the urethra still remains infected, if the kidney is still the site of pyelitis, if the enlarged prostate still obstructs the efflux of the urine. In the acute cases, from whatever cause, bladder irrigation is contraindicated except in the declining stage of a gonorrheal cystitis. Rest in bed, with the hips elevated, will often give considerable relief from the strangury and the constant desire to urinate; by elevating the hips the water which accumulates in the bladder flows away from the trigonum, which is the most congestive and acutely sensitive portion of the bladder. Opium and belladonna may be given in suppositories to control the pain. Heat to the perineum and above the pubis, and hot sitz baths, will greatly relieve the tenesmus, and to some extent lessen the congestion of the bladder mucous membrane. Diluent drinks should be freely given; if the urine is highly acid, mixtures containing potassium citrate and hyoscyamus will render the urine less irritating; hot rectal enemata are also indicated. Since the introduction of urotropin (and allied drugs) there has been considerable

discussion as to its usefulness; when administered by the mouth, urotropin is broken up into ammonia and formaldehyde gas, which latter is liberated as such in the urine. Dudgeon (*Lancet*, June 20, 1906, page 159) claims that this drug cannot be given in large enough doses to have any marked antiseptic effect in the bladder, but the clinic evidence does not substantiate his objections. However, in our enthusiasm over a drug which has helped in some cases, the tendency is often to forget the agents which were formerly used, and which materially aid in the treatment of these cases; infusion of linseed, buchu, and triticum repens are often of value in acute cases. In the subacute stage, the oil of sandalwood, cubebs, and copabia are most useful, but should not be employed for more than a few days at a time. In many cases, salol in doses of from $\frac{1}{2}$ to 1 dram [The latter dose seems to us too large.—Ed.] a day is more effective than urotropin.

In chronic cases, the treatment may be divided into the nonoperative and the operative treatment.

Some patients may be benefited by the use of drugs, rest in bed, and regulation of the diet, but in most cases, regular catheterism, irrigation of the bladder, and the use of some of the silver salts or of iodoform emulsion are called for. In the gonorrheal cases, oil of sandalwood or oil of copabia, combined with salol, and given in capsules, is of great benefit.

The object of washing out the bladder is primarily to cleanse the mucous membrane, and to remove the bacteria, mucus and other detritus which are present in the bladder and are constantly irritating its mucous surface; in order to accomplish this, warm sterile water is sufficient. It is not always necessary to introduce the catheter in order to irrigate the bladder, but in order to do it thoroughly it is best to use a catheter of large size, or an evacuating silver catheter; as soon as the liquid returns clear, the irrigation may be stopped.

Solutions of silver nitrate ($\frac{1}{2}$ of 1 per cent.), argyrol (20 to 50 per cent.), and iodoform emulsion have been found most useful. The method of using these solutions is as follows: After irrigating the bladder until the liquid returns

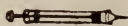
clear, 2 ounces of $\frac{1}{2}$ per cent. solution of silver nitrate is injected into the bladder and the catheter removed; the patient is to retain this solution for twenty minutes, if possible, and then pass it voluntarily. The argyrol and iodoform emulsion are used in smaller amounts, but in the same way. The instillations may be repeated every two or three days.

Direct application is by far the most efficient method of dealing with chronic cystitis. It is not applicable in the male, but can be done in the female with the patient in the knee-chest posture, and through a vesical speculum. The application is made with the mucous membrane in plain sight; for this, stronger solutions of silver nitrate may be used, and where ulcers are present they may be cauterized by the silver stick, or, if preferable, by carbolic acid or the actual cautery.

Surgical Treatment.—Some cases of chronic cystitis resist all of the ordinary methods of treatment; the patients are worn out by their suffering and are willing to subject themselves to any form of treatment that promises relief. In the case of cystocele and prolapse of the uterus, surgical intervention with the correction of these deformities will lay the foundation for the relief of the existing inflammation of the bladder. In cases of contracted bladder with thickened walls and an old chronic cystitis, the establishment of a vesicovaginal fistula will result in recovery after all other methods have failed. In the male, suprapubic cystotomy or perineal section is indicated; when the bladder is opened the mucous membrane is thoroughly cleansed, ulcerated surfaces are treated, and if necessary the whole bladder may be curetted. It is not sufficient simply to drain the bladder, but it must be subjected to daily irrigations and, if necessary, topical treatment. After the course of a few weeks the cystitis subsides; as a rule, the fistulæ close, but sometimes secondary operations are necessary.

In reviewing the entire subject, the necessity should be emphasized for exact diagnosis and appreciation of the exact pathological condition. In the acute cases, catheterism is contraindicated; in the chronic cases, as a rule, a direct examination of the bladder mucous membrane is most important; in those cases which resist all treatment, the existence

of tuberculous cystitis must be suspected, and to determine this the safest method is the injection of 10 c.c. of the urine into a guinea-pig.



THE PREVENTION OF CALCULI. GEORG KLEMPERER (*Therapie der Gegenwart*, 1908), in a comprehensive article on phosphaturia, urges the necessity of preventing the formation of calculi by an abundant and regular supply of water to the system. When the urinary organs are thoroughly flushed, crystalline particles cannot very well settle in the tract and thus form nuclei for the formation of stones. A good rule is to drink water at short intervals, especially between meals, and late at night. Unfortunately these simple rules are by no means universally appreciated. Thus Klemperer frequently sees patients who have passed stones and yet who drink water or other beverages two or three times daily. Every patient in whom the formation of stones is suspected, should drink from 250 to 300 cc. of water or other fluids, every three hours, or in other words, six times daily.

In order to prevent the formation of uric acid stones, the diet should be largely vegetable, while the prevention of stones composed of calcium oxalate requires a more abundant meat diet. In stones of the first mentioned variety, sodium bicarbonate is useful, while in these of the second category, salts of magnesium are of value. It is more difficult, however, to deal with patients with a tendency to phosphatic or carbonate calculi, which are formed in alkaline urines. The usual recommendation is an avoidance of vegetable diet and alkaline medication, and the adoption of a purely carnivorous diet, together with the administration of acids. This mode of treatment, however, does not lead to the desired result. In fact, the phosphatic stones very frequently reach considerable size under this procedure and even after operation, a permanent cure cannot be expected, for these patients tend to form new stones as the years go on. The prevention of alkaline calculi, therefore, is an important function of the physician.

Whenever we seek to prevent phosphaturia, or in other

words, the formation of phosphatic calculi, we must first ask ourselves: What is the cause of the precipitation of the phosphates? It is important to recognize the fact that this precipitation may be due to a variety of causes. Thus, in most cases, the phosphates are precipitated in the urine, because through the action of bacteria, the urea is decomposed into ammonia and carbonic acid, and the ammonia precipitates the phosphates. These cases may be called phosphaturias of bacterial origin. Whenever there is an obstruction to the urine, or whenever there is an infection with some retention, there is a tendency towards phosphaturia as the result of urinary decomposition. The preventive treatment in these cases is the treatment of the infection or of the local condition, causing the retention.

There is a second group, the aseptic phosphaturias in which the urine is clouded by precipitated phosphates without the development of free ammonia. These cases may be divided into two types. In the first, the precipitation of the phosphates is due to a change in the reaction of the urine. In the second group, the precipitation is due to an excess of calcium salts. The first group may be due to a retention or late discharge of the gastric juice into the duodenum, which is often met with in cases of hyperacidity and gastric hypersecretion. In these cases there is an atony of the gastric muscles and, therefore, a retention of the contents of the stomach. This gastric affection is frequently met with in neurasthenics and it is for this reason that neurasthenics suffer from phosphaturia. In order to cure this type of cases, we must treat the stomach. Neither acids nor alkalies should be given internally, but pure water impregnated with carbonic acid may be drunk in large amounts, and the so-called acid mineral waters may also be taken with benefit. In the other type of aseptic phosphaturia, due to an increase in calcium salts, there is probably an abnormal tendency on the part of the kidney to exclude calcium. In such cases it is very hard to treat a patient with a diet poor in calcium salts because this would exclude too many useful forms of food. The best way is to secure a greater excretion of calcium on the part of the intestine and thus to

relieve the kidney. A good method is to give small doses of oxalic acid. The dose recommended is 0.3 grammes of neutralized oxalic acid in 24 hours. In addition, a small amount of mercury should be given in these cases. A solution of mercuric bichloride, containing 0.1 in 20.0 may be given in doses of one drop three times daily in a wineglassful of water. The rationale of this method is that small doses of mercury and oxalic acid prevent the excretion of calcium by the renal epithelia. This has been experimentally proved by Klemperer.

BOOK NOTICES

A MANUAL OF VENEREAL DISEASES.—By Officers of the Royal Army Medical Corps. Introduction by Sir Alfred Keogh, K.C.B., Director-General of the Army Medical Service. History, Statistics, Invaliding, etc., by Lieut. Colonel C. H. Melville, R.A.M.C., Secretary to the Advisory Board. Clinical Pathology and Bacteriology by Colonel Leishman, R.A.M.C. Clinical Course and Treatment by Major C. E. Pollock, R.A.M.C. Published by the Oxford University Press: London and New York. 1907. Cloth. 282 pages. Price, \$1.50.

This is another one of the excellent manuals of the Oxford University Press. While the volume deals primarily with the treatment of venereal disease in the army, and while the details of the treatment in the army differ somewhat from the treatment in private practice, still the general conclusions are just as valuable for the practitioner as they are for the army officer. The mechanical make-up of the book is of the highest character.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M. D., Editor.

VOL. IV.

DECEMBER, 1908.

No 12.

Contributed by the Author to The American Journal of Urology.

PYURIA: ITS CAUSES, AND THE METHODS OF DETERMINING THEM.¹

By ABR. L. WOLBARST, M. D., New York.

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West Side German Dispensary.

PYURIA is a symptom of a pathologic condition, characterized by the secretion of pus, and located somewhere in the urogenital tract. In the male its source may be in the urinary tract, the genital tract, or the common urogenital tract (urethra). In the female, however, its source is almost always to be found in the urinary tract, unless through the existence of a fistula, uncleanness, or carelessness in the examination, the urine of the patient becomes polluted with pus emanating from the genital canal.

In the female, the problem of determining the source of the pus is therefore comparatively simple, if a possible vaginal or uterine discharge can be eliminated from consideration. The vulva and vagina are thoroughly cleansed and especially the external urethral orifice, so that any pus found in the urine must of necessity come from the urinary canal.

FROM WHICH PORTION OF THE URINARY TRACT IS THE PUS DERIVED?

We first eliminate the urethra. This is done in either one of two ways: 1. A very fine sterile catheter is inserted into the full bladder and some of the urine drawn off. If this is clear, we are sure the pus does not originate in the bladder or higher up in the urinary tract. The catheter is now withdrawn, and the urine voided. If it is cloudy, we know

¹ Read by title at the Seventh Annual Meeting of the American Urological Association, Chicago, Ill., June 2, 1908.

that the pus originates in the urethra. If, however, the urine drawn per catheter is turbid, the bladder is completely emptied per catheter in situ, and thoroughly washed out with sterile water or boric solution; it is now filled via same catheter with this solution, the catheter withdrawn, and the water voided. If this water comes out clear, the pus must have come from the bladder, ureters, or kidneys; if it comes out turbid, we are certain that at least a portion, if not all of the pus, originates in the urethra. The next step is to subject the urine thus passed to microscopic examination, and make a careful examination of the bladder with the cystoscope; this will tell us whether the pyuria is from the bladder, ureters or kidneys, or urethral in origin. 2. The urethra is thoroughly cleansed by means of a recurrent urethral catheter, until the washings are absolutely clean; the urine is then voided. If it is turbid, the pus comes from the bladder or higher up; if clear, the pus originates from the superficial layers of the urethra. If the urethra is now carefully stripped, and the urine again voided, any pus found in this urine will of necessity come from the deeper structures of the urethra.

Either of these tests will determine the origin of the pus, so far as the urethra is concerned; the remainder of the urinary tract being similar in both sexes, it need not be considered separately.

In the male, the determination of the source of urinary pus is far more difficult, because of the closer and more intimate relationship existing between the genital and urinary tracts. We have to determine: 1. Does the pus come from the urinary tract,—kidneys, ureters and bladder; 2. Does the pus come from the genital tract,—prostatic urethra, seminal ducts and seminal vesicles; 3. Does the pus come from the common urogenital tract,—anterior and posterior urethra.

Let us assume that we have no concomitant symptoms to guide us in our search for the cause of the pyuria. A man complains that his urine is turbid. All other symptoms are excluded for the immediate purpose.

Causes of cloudiness in urine—We first eliminate the pos-

sibility of our dealing with other causative factors than pus, *i. e.*, phosphates, urates, bacteria, etc. Briefly this is determined as follows:

(a) *Urates*: Heat some of the urine in a test-tube for a few seconds; if the turbidity disappears it was due to the presence of *urates*; if the turbidity increases or a precipitate forms, we have bacteria, pus, phosphates or mucus.

(b) *Phosphates*: Add a little acetic or nitric acid; if the turbidity disappears it was due to the presence of *phosphates*; if it is increased or precipitated, to pus or mucus, or both; if it remains unchanged, to bacteria.

(c) *Pus*: Add a little solution of potossium hydrate; if we get a gelatinous coagulum, the turbidity was due to *pus*.

(d) *Bacteriuria*: To determine absolutely the presence of bacteriuria, use the microscope.

(e) *Chyluria*: This is caused by the presence in the blood of the parasite *Filaria Sanguinis Hominis*, and may sometimes be mistaken for pyuria. The urine is milky white. When shaken with ether it will clear up, the fat cells being thus dissolved.

(f) *Prostatic Elements*: These are easily determined by the naked eye, and in the event of doubt, by the microscope.

THE PRESENCE OF PUS HAVING BEEN DETERMINED, WHAT IS ITS ORIGIN?

1. *Urethra*. This is the most common source of pus in the male. (a) *Acute Urethritis*. The existence of a more or less profuse discharge from the urinary meatus, at once suggests the probability of the urethral origin of the pyuria.

*Thompson Two-Glass Test*¹—The urine is voided in two glasses. If the anterior urethra alone is involved, the first urine will be cloudy, the second clear (Fig. 1). If the posterior urethra is also involved, urine passed into the second glass will also be turbid (Fig. 2). In acute urethro-cystitis (a third glass is added), the first glass is cloudy, glass two less cloudy, glass three very cloudy (Fig. 3).

Three-Glass Test (Ascribed to Jadassohn)²—The urine

¹ Devised in 1868 by Sir Henry Thompson, ("Diseases of the Urinary Organs").

² "Chronic Urethritis of Gonococcic Origin": De Keersmaecker and Verhoogen. Am. edition by Weiss.

is voided into three glasses. This is practically the same as the Thompson test; it is equally useful, but is liable to the same errors (Fig. 3).

For greater accuracy, various irrigation tests have been devised. True, it is rarely necessary to use them in acute urethritis, but it is well to remember that both of the tests mentioned above are liable to serious error, especially in chronic urethritis. But for ordinary routine use in acute urethritis, these tests are quite satisfactory.

(b) Chronic Urethritis.—Next to acute urethritis, this is the most frequent cause of male pyuria.

Thompson Two-Glass Test; Three-Glass Test—Both of these tests are to be avoided for purposes of diagnosis in chronic urethritis, because of their unreliability. In a very acute urethritis of a few days' duration the discharge of pus may be so great that both glasses will contain cloudy urine, and yet the posterior urethra may be not at all invaded by the inflammatory process; and conversely, in a case of chronic posterior urethritis, the first glass may and usually does contain pus and shreds, and the second glass appears perfectly clear; this is explained by the fact that the first urine passed washes out the posterior urethra, and the second urine, passing over a cleansed urethra, appears in the second glass perfectly clear. One must be on his guard at all times, lest he misinterpret the findings of these tests.

To obviate these errors, various "irrigation" tests have been devised. These tests are far more accurate, and if they are carefully performed, their results can be depended upon.

Smith Irrigation Test—The anterior urethra is carefully washed out with sterile water, and the urine is then voided into two clean glasses. This test is both simple and effective. The first washings (glass 1) give us a very good idea of the amount of pus, if there be any, in the anterior urethra; the washings in the "control" glass (glass 2) show us that the anterior canal has been entirely cleansed; the urine now passed (glass 3) over the cleansed anterior urethra, determines the origin of the pus. If it is clear, the origin is in

the anterior urethra (Fig. 4). If it is cloudy, the pus must necessarily come from the deep urethra or beyond that portion of the urogenital tract (Fig. 5).

Goldenberg-Jadassohn Test—This test, described by Goldenberg³ and Jadassohn⁴ almost simultaneously, is practically the same as the preceding, except that the anterior urethra is washed out through a catheter, inserted as far back as the bulb. It is apparent that this test is open to the serious objections that the introduction of the catheter brings with it dangers of infection, that it may act as an irritant foreign body, and that it is not always possible to say accurately where the eye of the catheter is situated. In 1894 Goldenberg⁵ substituted a short, hard rubber tube for the soft catheter.

Kollmann Test (the five-glass test)—By means of a soft catheter the anterior urethra is washed out, and the washings collected in two glasses; the urine is then passed into three glasses (Fig. 6.) This test is interpreted as follows: Glass 1 contains the pus or shred from the anterior urethra; glass 2 is the "control," and tells us that the anterior urethra is thoroughly cleansed; glass 3 contains pus from the posterior urethra; glass 4 from the bladder; glass 5 represents the last bladder urine, together with such pus and detritus squeezed out of the prostatic follicles, in the effort at emptying the bladder of the last drops of urine. This is the first test to attempt the identification of the prostate and vesicles as the source of the pyuria, but I am of the opinion, after some experience with it, that its usefulness for careful work, is theoretical rather than practical; and it would seem that even a most superficial study of this test, would demonstrate its utter unreliability for accurate, scientific results.

Jadassohn "Expression Urine" Test—This test makes a serious attempt to localize the source of the pyuria, if it is in the prostate. The patient passes his urine into two glasses,

³ Goldenberg, *Medical Record*, December 15, 1888, page 700.

⁴ Jadassohn, *Verhandlungen der Deutsch. Dermat. Gesellschaft*, page 172, I, 1889.

⁵ Goldenberg, Ueber den diagnostischen Wert der Modifizierten Thompsonschen Zweiglasser Probe. *Centralblatt der Harn. und Sex. Org.*, Vol. 5, 1894, page 356.

leaving some in the bladder. The prostate is now vigorously massaged, and the remaining urine is passed into a third glass. This test alone is not very useful, but when combined with the essential feature of the simple irrigation test (Smith), is of very great value, for here we are enabled to localize the pus, and thus determine its origin. We interpret the findings as follows: Glass 1 contains the urethral lavage; glass 2 "control"; glass 3 contains debris from the posterior urethra; glass 4 contains bladder urine; glass 5 (after massage) contains debris from the prostate and seminal vesicles.

*Young Seven-Glass Test*⁶—This test modifies the Kollmann test, by differentiating between the pendulous and bulbous portions of the anterior urethra, and offers a refinement of diagnosis that is rather interesting than useful in practise.

The patient compresses the urethra between the thumb and finger at the suspensory ligament; the irrigating tube is then inserted slowly, with the water running, up to the point of compression, and the fluid escaping is caught in two glasses, the first containing debris, if any; the second, clear (control). The compression is now withdrawn, and the tube is carried back as far as the deeper part of the bulbous urethra, the urine again being caught in two glasses, the first containing debris from the bulbous urethra, and the second clear (control). The patient then passes his urine into three glasses, as in the Kollman test.

*Wolbarst Three-Glass Catheter Test*⁷—The writer believes, in all modesty, that this is the only test by which we can separate mechanically and accurately the debris from the anterior urethra, posterior urethra, prostate, and bladder, eliminating all guess work and speculation; and it is extremely simple.

The anterior urethra is washed out carefully until the washings come out clear (glass 1); this gives us the contents of the anterior urethra. A second washing gives us a "control." A fine, soft catheter is now inserted into the bladder, and some of the bladder contents are drawn off into glass 2; this gives us the bladder urine. If this urine is clear and sparkling, the

⁶ Young: *Johns Hopkins Hospital Reports*, Vol. 13, 1906, page 9.

⁷ Wolbarst: *Medical Record*, April 21, 1906.

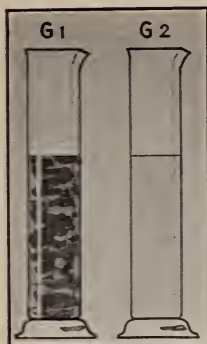


FIG. 1. Acute anterior urethritis, Thompson two-glass test: G₁, cloudy urine; G₂, clear urine.

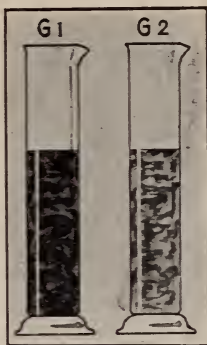


FIG. 2. Acute antero-posterior urethritis, Thompson two-glass test: G₁, cloudy urine; G₂, cloudy urine.

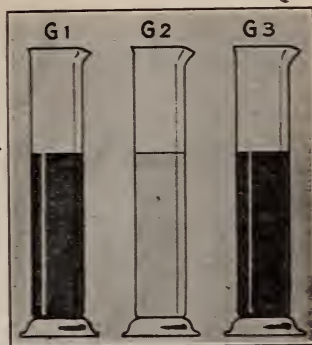


FIG. 3. Acute urethro-cystitis, three-glass test: G₁, cloudy urine; G₂, less cloudy urine; G₃, more cloudy urine.

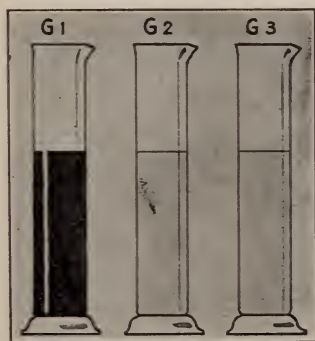


FIG. 4. Anterior urethritis, irrigation test: G₁, washings from anterior urethra; G₂, clean washings (control glass); G₃, clear urine passed by patient.

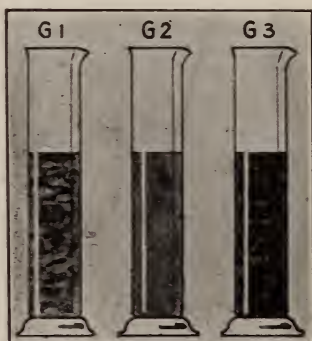


FIG. 5. Antero-posterior urethritis, irrigation test: G₁, washings from anterior urethra; G₂, clear washings (control glass); G₃, cloudy urine passed by patient.

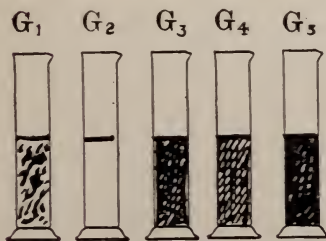
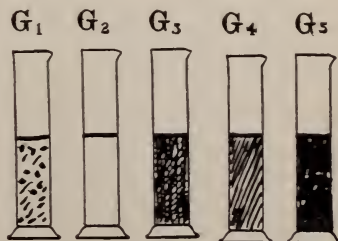


FIG. 6. Kollman (five-glass) test, in chronic antero-posterior urethritis involving the prostate.



(FIG. 7. Jadassohn (expression urine) test, in chronic posterior urethritis with prostatitis.

catheter is withdrawn, and the patient passes a small amount of urine into glass 3; this gives us the debris washed out from the posterior urethra. We thus have the mechanically separated contents of these three portions of the urinary tract. If the bladder content is not clear, when drawn into glass 2, the bladder is emptied, carefully washed out and filled with sterile water or boric acid solution, the catheter remaining in situ undisturbed. The rest of the test remains unchanged.

For the prostate, another glass is added. The prostate and vesicles are carefully massaged and stripped, and the remaining urine or bladder solution is passed into glass 4; this gives us any pus that may have been expressed from the prostate by massage. This test has been found accurate and sufficient for all purposes, to determine the origin of pus, as between the anterior urethra, posterior urethra, bladder and prostate.

There are two tests still to be considered which aim to prove the accuracy with which the urethral lavage is performed in the tests above mentioned:

Kromeyer Methylen Blue Test—From 4 to 5 c. c. of a 1:1000 solution of methylen blue are injected or instilled into the anterior urethra. The meatus is held closed for a few minutes and the solution allowed to escape. The patient is asked to urinate into a number of glasses and if blue shreds are found they are said to come from the anterior urethra. White shreds, if present, are said to come from the posterior urethra.

Lohnstein Test—After the first urination in the morning a 5:1000 solution of potassium ferrocyanid is injected into the anterior urethra, washing the canal well without passing the sphincter. Next, the urethra is washed well until no traces of ferrocyanid are left, which is evident on testing with a few drops of ferric chlorid solution. The latter gives a characteristic blue color in the presence of potassium ferrocyanid.

After we are sure that we have removed all traces of the ferrocyanid from the anterior urethra, the patient is allowed to void his urine into three glasses and we examine for pus and shreds. To each of the three glasses a few drops of ferric chlorid solution are now added, in order to see whether

or not any of the washing fluid had penetrated into the posterior urethra (in which case the fluid shows a blue color). In this way one can test accurately whether the washing of the anterior urethra was properly performed. Any shreds or pus cells that do not show a blue color are from the posterior urethra.

These tests having eliminated the urethra and the genital tract as the source of the pus, we now pass to a consideration of the bladder, the next most frequent source of pyuria. Here, however, we make no sex distinction. All methods of procedure are applicable to either sex.

The Bladder—The principal causes of pyuria of bladder origin, are cystitis (acute), stone, tumors, foreign bodies, tuberculosis, obstruction to the urinary flow, and retention.

Acute Cystitis—The cardinal requirements for this condition are pyuria, pain and urinary frequency. There can be no cystitis without pyuria, excepting in occasional incipient cases where the inflammation is still of a very mild type. This condition is practically always gonorrheal in nature, except in the cystitis of mechanical or chemical origin. When it is gonorrheal, it is always associated with gonorrheal urethritis, in a more or less severe degree, and its diagnosis can be made with but little difficulty by employing the tests enumerated above.

Acute traumatic cystitis follows the introduction of instruments, the passage of calculi, and the entrance of urine into the bladder, which is loaded with urates, oxalates or phosphates. The chemical and microscopic examination of the urine in such cases is of the utmost value in determining the origin of the pus.

Acute Cystitis of Chemical Origin often follows the entrance into the bladder of strong and irritant chemical bodies. They may reach the bladder either by way of the mouth, *e. g.*, cantharides, or by way of the urethra, as for example, when strong solutions of silver nitrate or mercury bichlorid are injected. The history and the clinical signs reinforced by the simple irrigation test (Smith) make the diagnosis for us.

Vesical Calculus—Calculus brings with it a symptom-complex that helps considerably in the diagnosis. The prin-

cial symptoms are pain, urinary disturbances, pyuria and hematuria. The pain is not continuous or spontaneous. It is enhanced by the patient moving about, and diminished when the patient rests. There is an additional pain, that occurs at the close of micturition, when the inflamed mucous membrane contracts in expelling the last drops of urine. This is a sharp, lancinating pain, radiating down the thighs and to the glans penis.

Uration is frequent and often interrupted by the falling of the stone into the urethral opening, and closing it as in a ball and socket joint. The urinary demands are more urgent by day than by night, and often there is a complete absence of nocturnal dysuria.

Pyuria and Hematuria are not essential concomitants of vesical calculus. The pyuria is inevitable, however, if the calculus succeeds in bringing on the development of cystitis. The hematuria is usually the result of the stone moving about while the patient is in motion, and it is soon stopped by rest in bed. The blood may also appear as a Terminal Hematuria, *i. e.*, at the termination of the act of micturition. This form of hemorrhage is probably caused by the stone impinging on the vesical neck and thus causing a slight traumatic lesion.

Whenever these symptoms present themselves, it is imperative that a further examination be made to make the diagnosis certain. This is attained by the employment of the Thompson searcher, or if that fails to reveal the stone, by the use of the cystoscope. In the vast majority of instances, however, where stone is suspected from the symptom complex, our suspicions will be confirmed by one or the other of these instruments. The X-ray should also be remembered as an important though not infallible aid in the diagnosis.

Foreign Bodies—Foreign bodies get into the bladder from time to time, and it is not very difficult to diagnosis their presence. The history will help considerably. If the body is of metal, the X-ray will make the diagnosis. The cystoscope, however, is the instrument par excellence.

Tumors of the Bladder—Pyuria is a late symptom of vesical tumor. Early in the disease, and throughout its entire

duration, hematuria is the cardinal symptom. It comes on suddenly and without premonitory signs, and just as suddenly stops without apparent cause or reason. Pain and frequency of urination are concomitant symptoms that should be remembered in the diagnosis. Usually they follow the initial hemorrhage, but not infrequently they make their appearance long before the blood. Occasionally the growth may be so situated with reference to the bladder neck, that it may interfere more or less with the outflow of urine, and in rare instances it may completely block up the urethral orifice and thus cause temporary retention. Nitze reports a case where the patient often had an obstruction of the urinary stream, which was only relieved by the patient urinating while lying prone on his back. The pyuria appears on the development of cystitis, which sooner or later follows infection by bladder instrumentation or otherwise. Much assistance in the diagnosis is found in the appearance of tumor elements associated with the blood and pus under microscopic examination; but should there still remain a doubt as to the source of the pyuria, the cystoscope may be relied upon to clear it up.

Vesical Tuberculosis—The causative factor is the presence of the tubercle bacillus. Associated with the presence of the organism, it is necessary that there exist a predisposition to infection, or a predisposing factor in the shape of congestion, trauma or retention of urine. Often it is only a symptom of a general tuberculous infection; usually it is secondary to infection either in the prostate and adnexa or in the kidneys.

Early in the disease the principal symptoms are the hematuria and urinary urgency. As time goes on, the urinary symptoms increase to a considerable degree, so that the element of pain and urinary strangury are the controlling symptoms in the clinical picture. And now cystitis develops, and with it pus appears in the urine to a greater or less degree; it is usually mixed with blood. If the kidneys are likewise involved there will be an increase in the quantity of pus.

Besides these symptoms to aid us in our diagnosis, we have in the discovery of the tubercle bacillus in the urine, a means of positive diagnosis. Casper believes that the bacillus can be identified in 80 per cent. of the cases of vesical tuber-

culosis. Even when the tubercle bacillus cannot be found, the diagnosis may still be made with a fair degree of certainty, by the symptom-complex peculiar to vesical tuberculosis. And if there still remain doubts as to the diagnosis, the employment of the cystoscope, under general or if possible, local anesthesia, will usually eliminate all existing doubts.

HOW SHALL WE DIFFERENTIATE BETWEEN VESICAL AND RENAL TUBERCULOSIS?

The microscopic examination of the bladder contents is necessary. If we find a considerable proportion of renal elements in the urine, we may strongly suspect kidney involvement. If there are symptoms pointing to renal disease, we have another clue to the diagnosis; as a last resort, and the final arbiter, we look to the cystoscope to make the diagnosis for us. This should be done under anesthesia,—local if possible, general if necessary, but *it should be done*.

Obstruction to the Urinary Flow—Obstruction to the flow of urine may be considered a frequent contributing cause of pyuria, but that is true only when the obstruction assumes such shape as to prevent the free passage of the urinary stream, and thereby results in the development of urinary stasis. It will therefore be best considered in connection with retention, of which it is the precursor.

Retention of Urine—Wherever there is obstruction and retention, there must be pyuria sooner or later. Urinary retention owes its existence in most instances to urethral stricture following gonorrhea or trauma, hypertrophy of the prostate or to chronic contracture of the neck of the bladder. In all of these conditions, the development of the pyuria is identical. The bladder has difficulty in completely emptying itself. The continual straining to which its walls are subjected in these efforts at emptying, brings on a progressive congestion that increases so long as the obstruction is kept up. The bladder walls become weakened and hypertrophied, and afford easy access to any bacterial life that may happen to enter the bladder. The difficulty of emptying itself completely increases continually, and soon there is always enough residual urine in the bladder to afford a splendid culture ground for the

bacteria. The result is a well marked cystitis, with a considerable exudation of pus.

The diagnosis of these predisposing conditions is fairly simple. The existence of stricture of the urethra is easily determined by examination. Contracture of the bladder neck is identified by the existence of residual urine, without there being any evidences of enlarged prostate. Prostatic hypertrophy is identified by the enlarged organ per rectum, associated with residual urine and an increase in the urinary length.

The Kidneys and Ureters—We now are brought to the consideration of these organs as the source of pyuria. The anatomical arrangement is such that, except in absolutely clear cut cases, the diagnosis must be made by exclusion. This means that the urethra, prostate and bladder must be eliminated before we can decide that the kidney or the ureters are diseased, in any doubtful case.

The Pus Kidney manifests itself in four degrees of intensity—1, Pyelitis or Pyelo-nephritis (catarrhal); 2, Pyelo-nephritis (suppurative); 3, Pyonephrosis; 4, Kidney Abscess. In pyelitis, the pelvis of the kidney is alone affected in the catarrhal process; in pyelo-nephritis, the kidney cortex is likewise affected; in pyonephrosis, in addition to the kidney substance being involved there is a more or less marked dilatation of the organ; abscess in the kidney is a suppuration of the organ proper, forming a confluent nidus appreciable to the naked eye. This form does not necessarily involve with it the pelvis of the kidney.

All of these forms, for the purposes of this paper, may be considered at the same time, except in so far as their clinical manifestations might differ in degree rather than in variety. One symptom is common to them all—pyuria. True, the greater the degree of inflammation, the more pus we are likely to have in the urine. The only exception to this rule is to be found in those so-called "closed" kidneys; in these cases the ureter for one reason or another becomes partly or entirely impervious to the passage of the pus, and the urine becomes for a time perfectly clear, or nearly so, simultaneously with the obstruction, the kidney pelvis and the organ itself become

swollen, painful and tender. Constitutional symptoms soon appear, together with severe attacks of renal colic.

The pus of renal origin is said to have certain characteristics by which it can be differentiated from pus of bladder or urethral origin. (a) Kidney pus is found in acid urine; pus found in alkaline urine is said to be of bladder or prostatic origin. Generally speaking, it is well to bear this distinction in mind, but it is equally well not to place too much reliance on it, especially in a negative way. It should be remembered that in many cases of cystitis, the urine is acid, and that ammoniacal decomposition of the urine in the bladder does not always necessarily go with the production of pus. We should also bear in mind that urine may stagnate and undergo ammoniacal fermentation in the kidney calyces, and its pelvis.

(b) If the urine is passed into a glass and allowed to stand, it will be found that "the pus sinks to the bottom of the glass and lies flat and solid like a bed of sand, while the supernatant fluid remains hazy with bacteria." "Bladder pus never settles in this way. However intense the cystitis, however deep the layer of pus at the bottom of the glass, it is always capped by a fluffy, rolling muco-cloud (like the thunderheads on the horizon of a summer sunset) if the pus comes from any part of the urinary tract except the kidneys" (Keyes).

(c) Microscopic examination of the centrifuged pus, is said by some to give us a definite clue to the kidney origin of pus, but this view has not yet become generally accepted. It is often impossible for the most expert microscopist to differentiate between pelvic epithelia and some of the forms derived from the deeper strata of the lower portion of the urinary tract.

In addition to pyuria, the most common symptoms of kidney disease are pain and tenderness over the affected kidney region, the development of a lumbar tumor, and the rise of constitutional symptoms. While all of these symptoms may join with the pyuria to make a clear cut clinical picture, any or all of them may be absent, thus leaving pyuria as the only symptom appreciable. In such a case we must rely upon the modern refinements of examination to make the diagnosis

for us. This will bring into use the cystoscope, the urinary segregator and the exploratory operation (described later).

Renal Calculus—This is a frequent source of pyuria. In the early stages pus is not apt to be present in the urine—blood is more frequently encountered, but later on, pyuria is an inevitable symptom with the development of pyelitis, and one of the greatest importance in the diagnosis. Pain is an important symptom. Sometimes it is fairly diagnostic. It may be constant or periodic—in the latter event, it appears in the form of colic, a very characteristic pain. Occasionally when the stone is fairly large, a tumor can be felt in the kidney region, which also helps to make a diagnosis. The combined symptom complex, *i. e.*, pain—constant, or associated with periodic outbreaks of great severity, pus and blood in the urine, and a tumor with tenderness over the kidney region, gives us a clinical picture that renders the diagnosis fairly certain. It is in those unusual cases in which the elements of pain is absent, that the diagnosis is difficult. Such a case is the one the writer saw some years ago. The only symptoms—lasting about a year, and following an attack of gonorrhea, were frequent micturition and pus in the urine. At no time was there pain anywhere, or blood in the urine. The attending physician was still treating what he thought was a chronic gonorrhea. At the first examination, the Thompson searcher revealed a large stone in the bladder; after this was removed (suprapubic cystotomy), the cystoscope revealed a thick stream of creamy pus emanating from the left ureteral orifice. The corresponding kidney, on operation, was found to contain a large number of stones of various sizes, it was at least four times its normal size and was nothing more than a mere shell. The entire kidney substance had been destroyed. The patient having a very marked kyphosis, the kidney could not be palpated before operation, and in order to remove it, it was found necessary to resect four ribs. The patient made a complete recovery. In this case the diagnosis could never have been made before operation without the cystoscope.

The X-ray in this condition finds one of its most important forms of usefulness. In every case in which there

is the slightest suspicion of the presence of renal calculi, this method of diagnosis should be employed.

Tuberculosis—To diagnose the existence and presence of renal tuberculosis by the symptoms presented, is often well-nigh impossible. At the best, it is difficult. The symptoms may be entirely or partially absent. There may be no pain anywhere, except in the bladder region, and the only additional symptom may be the presence of pus in the urine. This last is perhaps the only constant symptom of renal tuberculosis, but for diagnostic purposes it is useless standing alone.

Urinary frequency is usually the first symptom to attract the attention. The bladder may or may not be affected; and in the early stages, there may be an utter absence of pyuria.

Hematuria is also a common symptom early in the disease, but not a constant one. Renal tumor is sometimes found, associated with a sense of dullness and soreness in the kidney region. Rarely attacks of renal colic, due to the presence of caseous debris and blood clots, may be present. The urine is acid, invariably so, and filled with pus; the amount passed is greater than the normal. If the ureter becomes occluded, the pain is increased considerably and the pyuria simultaneously disappears.

All these symptoms, while not characteristic alone, are more than merely suggestive when associated with a tuberculous or suspicious history or lesion elsewhere. In the presence of a tuberculous lesion elsewhere in the body, even the absence of the tubercle bacillus from the urine, need not militate against making the diagnosis of renal tuberculosis. Of course, it goes without saying that the cystoscope is of invaluable importance in determining which of the two kidneys is the affected one. If, however, the cystoscope gives us unmistakable evidence of disease at the ureteral orifice, and if, associated with this information, we find the tubercle bacillus in the urine, the diagnosis is made to a certainty.

The diagnosis is made on the appearance of the ureteral orifices. In renal tuberculosis the ureteral mouth on the corresponding affected side will be inflamed and ulcerated; on

the healthy side it will appear normal. Willy Meyer⁸ says "the mere fact that it (the ureteral mouth) is ulcerated, proves the respective kidney to be the original seat of the disease. In most cases belonging to this class ureteral catheterization is superfluous so long as the mouth of the opposite side is seen to be healthy and urinary analysis of the twenty-four hours' specimen has shown a sufficient excretion of urea."

Trauma—An injury to the kidney will, if accompanied or followed by an infection, result in the production of pyuria. The history of the injury, associated with the local symptoms are usually sufficient data upon which to make a diagnosis. Should these fail, we again fall back upon the cystoscope for the diagnosis.

In all these kidney conditions, the diagnosis should be made if possible, by the clinical picture presented by the patient, combined with the history in each particular case. When, however, these fail to enlighten us, we are forced to resort to other measures for our diagnosis. It being settled that the pyuria finds its origin in the urinary tract, somewhere above the bladder, a provisional diagnosis can be made by the clinical symptoms, but a positive diagnosis cannot be made, except in the typical cases, without the adoption of one or more of these measures: (a) the study of the ureteral orifices by the aid of the cystoscope; (b) segregation (I uys, Harris); (c) ureteral catheterization, cryoscopy for function of healthy(?) kidney; (d) exploratory nephrotomy.

The Ureters—These canals lying between the kidneys and bladder, are subject to the lesions that usually involve these organs. Identification of ureteral conditions has not yet reached the state of an exact science. Owing to its anatomical relations and position, examination of the ureters by palpation or otherwise is anything but satisfactory in the average case, especially the upper portion.

Isolated lesions are therefore not only unusual, but hard to determine. The list of affections thus far recorded include injuries, fistulae, inflammation, stricture, calculi and tuberculosis.

⁸ N. Y. Med. Journal, April 27, 1907.

Practically all depend upon the kidneys or bladder for their existence, and it is but rarely that they give symptoms not associated with the symptoms of the kidney or bladder lesion.

Our greatest, and practically only reliance for our diagnosis, is to be found in the cystoscope and ureteral catheter. The waxed catheter (Kelly) is of great value in ureteral calculus, and so is the X-ray. For injuries and fistulae, the ureteral catheter will also be found useful. With tuberculosis of the ureter, we usually have an associated renal or vesical tuberculosis; there is therefore nothing gained by making the diagnosis, if it could be made. However, it would seem to me that in such cases where a lesion of the ureter was suspected, without any corresponding lesion in the kidney or bladder, the ureteral catheter could be used to clear up the diagnosis. The catheter could be inserted into the ureter almost up to the renal pelvis; the ureter is then thoroughly lavaged, until the washings come out clear, the catheter is then advanced so that its eye is in the pelvis of the kidney. If the urine thus drawn from the kidney comes out clear, it is reasonable to say that the pus came from the ureter.

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Contributed by the Author to The American Journal of Urology.

THE ENDOSCOPIC CONSIDERATION OF NEW GROWTHS OF THE URETHRA.*

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NEW growths of the urethra with the possible exception of the vascular polypi, or caruncles, found in the female urethra, are comparatively rare. Papillomata, both sessile and pediculated, fibrous, fibromyxomatous, fibro-myxomatous, and vascular polypi, cysts of Cowper's glands and of the prostatic utricle, carcinomata and sarcomata occur in frequency in about the order mentioned.

(A) *Papillomata*—The site of predilection of the most common form of urethral new growth is at, or in the neigh-

* This paper forms a portion of a chapter in a work on "Cystoscopy and Urethroscopy" now under preparation by Dr. Bransford Lewis and the writer.

borhood of, the external meatus, though papillomata have been found throughout the entire extent of the urethra and may even invade the bladder. Oberländer, Desgueir (*Soc. belge de chir.*, Dec. 28th, 1896), and Reboul (*Assoc. franc. d'urologie*, 1896) report cases of this character.

For the first description of papillomata of the deeper portions of the urethra we are indebted to Vajda (*Wiener medic Wochenschrift*, 1882). Similar cases are cited by him, the reports emanating from Morgagni, Rokitansky, Hunter, Tarnowsky, Dittel and others. Since that time there have been numerous cases reported by various observers, notably Rosenthal, Kollmann and Oberländer, in Germany, and Klotz in this country.

While recognizing the fact that the urethral papillomata are not invariably preceded by a chronic urethritis, Oberländer (*Sajous's Annual*, 1888, II, 212, from *Vierteljahresschrift für Bern. und Syph.*) has described a form of papillary overgrowth — "urethritis papillomatosa" — which takes place upon the areas of infiltration found in chronic urethritis. Bruggs (*Gaz. hebdomadaire de Montpellier*, 1890, No. 5, page 58) reports a characteristic case of this form of urethritis. It may be stated as practically axiomatic that those papillomata which originate back of the navicular fossa arise from but two causes—chronic gonorrhea and syphilis. Legueu's investigations (*Traité de Chirurgie*, tome IX) bear out this contention, and Halle and Wassermann have given a most excellent description of those papillomata which arise from the extreme degree of hard infiltration, while papillomata originating in the lesser degrees of infiltration have been thoroughly studied by Grünfeld (*Die Endoscopie der Harnrohre und Blase*). Cases of a similar character have been reported by numerous observers, notably Bryant (*Med. Chir. Trans*, Vol. LXXVI, page 191), Klotz (*N. Y. Med. Jour.*, Jan. 26th, 1895), Goldenburg (*N. Y. Med. Jour.*, Nov., 1898, page 600), Eversole (*St. Louis Polyclinic*, Aug. 5th, 1889) and Briggs (*Boston Med. and Surg.*, Oct. 24th, 1889).

Endoscopically considered papillomata present themselves either singly or in groups, or "nests" (Rosenthal:

Berliner Klin., Wochenschrift, 1884, No. 23). Single papillomata, unassociated with multiple growths in other parts of the urethra, are of extreme rarity. They are almost invariably found in that portion of the urethra lying between the peno-scrotal junction and the anterior layer of the triangular ligament, apparently springing from isolated papillæ. According to Henle (Handbuch der Systemat Anatomie, Vol. II, page 433) papillae in the male urethra are particularly abundant in the region covered with stratified pavement epithelium, an extent of from one to four centimeters from the meatus. Back of this, single isolated papillae are found and it is from these scattered papillae that the single papillomata arise.

Multiple papillomata practically always originate at, or in the neighborhood of, the external meatus and are usually associated with similar papillary exuberences on the glans and prepuce in the male and vulva in the female. They have a tendency to extend along the inferior wall, though no part of the urethral circumference is exempt, and the entire extent of the urethra may be invaded.

Through the urethroscope papillomata have the appearance of roughened, warty excrescences of a glistening pale pink color. They resemble closely the verrucae acuminatae exhibiting the same differences in shape and extent. In the grouped, or nested, papillomata the base of the growth is broader than in the single isolated growth. The latter occasionally appear as thin delicate fibrillae. Both forms are usually found when the growths invade the urethra to any extent.

The urethroscopic appearance of these growths is so typical that it is hardly possible for a mistake in diagnosis to occur. The fact that they are readily rubbed off their site of attachment leaving a freely bleeding base makes the diagnosis certain.

In the urethroscopic examination of papillomata, the readiness with which they may be separated from their site of attachment and the tendency of any laceration of these growths to produce hemorrhage which will make the diagnosis difficult must be kept in mind. In the accurate diag-

nosis of the presence and extent of urethral papillomata, air-inflation urethroscopy is absolutely essential. By means of air-inflation the tendency to tearing the growths is reduced to a minimum and their character and extent may be easily determined.

(B) *Polypi*—The term polyp as applied to certain new growths in the urethra has been so varied in its application as to cause much confusion in the classification of tumors of the urethra. Legueu (loc. cit.), Janet (Cinq cas de polypes uretraux, Assoc. franc. d'urologie, 2nd session, Comptes rendus, Paris, 1898, page 402), and others have included papillomata in their classification of polypi serving further to confuse the literature. Janet divides polypi into two classes, (1) wormlike, single growths found in the region of the bulb and (2) papillomatous, sessile growths disseminated throughout the urethra. The inclusion of the latter under the head of polypi seems to us to be manifestly incorrect.

In order to obviate this confusion in classification we consider it more logical to include under the clinical term of polypi those growths which resemble clinically the tumors found elsewhere which have been consistently classified as polyps. Under this heading come fibromata, fibro-myxomata, fibro-myomata, and vascular polypi,—the caruncles of the female urethra. Fibromata are rare and true myxomata are never found. We do not include under the heading of polypi those glandular hypertrophies, occurring as an accompaniment of chronic gonorrheal urethritis. They have been classified as polypi by several authors, notably Legueu, who considers them to be the purest type of polyp, and insists upon their constant pediculation.

(A) *Vascular Polypi*—Vascular polypi, to which the terms urethral caruncles and angiomata have been applied, are found with great constancy in the female urethra but are exceptionally rare in the male, only a few instances being recorded.

According to Pozzi, this form of urethral new growth in the female results from the retention of erectile tissue which normally belongs to the male and their growth is

dependent upon some local irritation. The growth is composed of dilated capillaries intermixed with connective tissue and has a covering of stratified epithelium. It has a plentiful nerve supply. The vascular polyp must not be confounded with the varices occurring in the female urethra from which they differ both histologically and clinically.

They are found most commonly at the middle period of life, though Giraldes observed a case in an infant of three years and Trelat has operated for this condition on a woman of seventy-five years.

In the female they present themselves, as a rule, at the meatus externus or just within the urethra on the floor. In the cases recorded as occurring in the male, the polyps were found just within the meatus or in the navicular fossa and resembled in all clinical peculiarities the caruncles found in the female.

They appear as bright-red, succulent looking growths, having a distinct pedicle and are exquisitely sensitive. While ordinarily single they are very often multiple.

The urethroscope is seldom called upon in the diagnosis of vascular polypi on account of their location. Their extreme sensitiveness combined with their bright-red appearance serves to differentiate them from the other forms of urethral polypi.

(B) *Fibromata, Fibro-myxomata, and Fibro-miomata*—These three varieties of urethral new growth resemble each other so closely clinically that it is practically impossible to make a differential diagnosis until the tumors are examined histologically. On account of their lack of clinical individuality we shall consider them collectively. True fibromata are extremely rare, the mixed types, fibro-myxomata and fibro-miomata being most commonly found. They present themselves, as a rule, in the adult female, Legueu absolutely excluding their presence in the male, though this stand is refuted by numerous observers.

The fibro-myxomata develop in areas of infiltration, usually the result of chronic urethritis. Fibro-miomata develop at the expense of the fibro-muscular elements, and in their incipency are not intra-urethral growths, but in the

course of their development project into the urethral lumen (Dubar, Notes, Sur. un volumineux polype de l'uretre chez la femme. Bull. Med. du Nord. T. XXVIII, page 451).

In the male the mixed forms have been reported by various observers as occurring in the different anatomical divisions of the canal, the bulbous portion seeming to be the most common site. The predilection of these polypi for this location is borne out by the observations of Janet, Klotz, and others, and is in accord with our own clinical experience. Klotz reports one case as springing from the membranous urethra, a most unusual location. Well authenticated observations of true fibromata occurring in the male urethra are exceptionally rare, and in all of the reported instances the growths were located in the prostatic urethra and had their site of attachment in the immediate neighborhood of the ejaculatory ducts. They are almost invariably single. We have observed postmortem a case of multiple fibromata in the prostatic portion of the canal. In this case there were six distinct polypi scattered over the inferior wall and sides of the prostatic urethra.

In the female, as in the male, the growths may spring from any point of the urethra and on account of their pediculation, which is sometimes extreme, may present at the external meatus though their site of attachment may be a considerable distance within the urethra. Their point of origin is usually at the level of the posterior wall in the urethro-vaginal partition.

Endoscopically, these growths appear as smooth rounded polypi having a distinct pedicle or stem, the pediculation being more pronounced in the fibro-myxomata and fibromata. The growth has a tendency to stand out fairly prominently, exhibiting a stiffness, as it were, of the pedicle.

Normally, the color varies. In the fibro-myomata it is practically the same as that of the surrounding healthy mucosa. In the fibromata and fibro-myxomata, the coloring is paler, almost sclerotic in the latter. In the diagnosis of these growths their possible malignancy must be taken into consideration. Both sarcomata and carcinomata may be present as pedicled growths and the possibility of malignant

transformation of essentially benign growths must not be overlooked. Toupet, in examining Schwartz's case (Sem. Med., 1889) found in the center of the polyp a transitional change towards malignancy.

In his work (*Die Endoskopie der Harnrohre und Blase*) Grünfeld has noted a difficulty in recognizing the larger wormlike polypi on account of the growths falling closely against the walls on the withdrawal of the urethroscope and simulating the natural folds. To prevent this, he has suggested that the urethra be inspected while inserting the urethroscope, thus unrolling the growth into the lumen of the tube.

We cannot conceive the possibility of such an error in diagnosis at the hands of a skilled and careful urethroscopist, and even admitting the possibility under ordinary urethroscopy, such an error could not arise under the use of air-inflation. We cannot commend the procedure recommended by Grünfeld on account of its being so productive of trauma.

Varices—The occurrence of varices in the female urethra is not uncommon, but their existence in the male urethra is exceptionally rare. Probably the best authenticated case reported is by Klotz, of New York (*N. Y. Med. Journ.*, Jan. 26th, 1895). In Klotz's case the tumor was found in the mid-pendulous portion on the left side of the urethra. His description follows:

"The protruding portion of the mucous membrane was found to be of a smooth surface and a dark bluish color, of the shape and size of a coffee-bean, sharply defined at the base from the dark pink surrounding portions. The tumor was soft and easily yielded to the pressure of the tube, although on introduction it seemed to offer a slight resistance. On close inspection within the tumor a number of separate cords separated by yellowish wide lines resembling the rings of a coil, could be distinguished apparently representing dilated blood-vessels, and imparting to the whole mass the character of a cavernous angioma."

Varices of the female urethra usually present at, or immediately behind, the meatus externus. They may attain a relatively large size. On account of their accessibility

and their hemorrhoidal appearance, their urethroscopic description is unnecessary.

Cyst of the Prostatic Utricle—The occurrence of utricular cyst in the adult is extremely rare. Englisch, in seventy autopsies on new-born infants, found this condition five times and Cabot (Trans. Amer. Asso. G. U. Surgeons, 20th Annual Meeting, Vol. I, page 101, 1906) concludes from his investigations, that it is practically never found in the adult.

A few instances have, however, been reported in which the cyst has been observed urethroscopically. Klotz's case ("Endoscopic Studies," N. Y. Med. Jour., Jan. 26, 1895) appears to be well authenticated by its clinical description though he hesitates to report it unequivocally as an utricular cyst.

In the few reported cases observed through the urethroscope the existence of the cyst has in every instance been traceable to the infiltration of chronic urethritis occluding what was presumably originally a prostatic utricle of very small dimensions.

Urethroscopically, such a cyst has the peculiar bluish-white, translucent appearance of similar cysts of Littre's glands but attains a size proportionately larger. Its diagnosis is dependent upon its location and the existence of a surrounding zone of infiltration.

Carcinoma—Primary carcinoma of the urethra is an extremely rare affection, especially so in the male. At different intervals various observers have collected the literature bearing on the subject so that we may say that carcinoma, while of extreme rarity, is probably the most thoroughly studied of all of the new growths of the urethra. The combined investigations of latter day observers, notably Basil Hall (Ann. of Surgery, March, 1904) and M. Hartmann (Travaux de Chirurgie, 1906) show but twenty-seven proven cases of carcinoma of the male urethra, and thirty-six in the female. To these cases we wish to add two observations, one by Dr. Frank J. Hall—a squamous-cell cancer of the female urethra and the other by Dr. J. Block and ourselves, a carcinoma of the bulbous urethra.

The first case reported is that of Thiaudiere, in 1884. This case is rejected by both Kaufmann and Hall though in all probability the growth was a carcinoma.

The first authentic case is that reported by Hutchinson (Trans. Path. Soc., London, Vol. XIII, page 167, in 1861). Since that time there have been a number of these on the subject by Thiersch, Billroth, Poncet, Guyon and Guiard, Salzer and Grünfeld, Griffith, Czerny and Witzenhausen, Carcey, Beck, Oberländer, Albarren, Hall, Hartmann and others. A full review of the literature, which is fairly voluminous, would be out of place in this paper.

Practically all of the reported cases were squamous-cell carcinoma. Kocher's case (Deutsche Chirurgie, 1884) was a typical glandular carcinoma and partly a cylindroma. The case of Knoll (Deutsche Zeitschrift für Chirurgie, 1906) was an adeno-carcinoma.

The site of predilection of carcinoma in the male urethra is in the bulbar portion. In the cases of Thiaudiere, Hutchinson and Buday, the growth was located just posterior to the glans. In Billroth's case, the cancer began in the mid-pendulous portion, while in Grünfeld's case, the prostatic urethra was the point of origin. Hartmann is of the opinion that the tumor in Grünfeld's case originated in the prostate and that the urethra became involved secondarily.

In the majority of cases in the male, the growth was preceded and accompanied by gonorrheal stricture, though some cases presented no history of gonorrhea. Hartmann thinks, however, that gonorrheal stricture occurs with sufficient frequency to be considered as a factor in the etiology.

Urethrorrhagia is considered by Beck to be a fairly common symptom though in quite a considerable proportion of the cases there was no hemorrhage from the urethra. In the cases of Beck, Guyon and Guiard, and Grünfeld, hemorrhage was a prominent symptom. In the cases observed by Dr. Block and ourselves, hemorrhage from the meatus occurring independently of micturition, was one of the earliest symptoms.

Carcinoma of the urethra has been observed but three times via the urethroscope—by Grünfeld, 1885, Oberländer,

1893, and Beck in 1890. In Oberländer's case the diagnosis was made by means of urethroscopy and later confirmed.

The observations of these three observers are of such interest as to justify a detailed description.

Grünfeld's Case—Urethroscopy with a straight tube. On inserting the tube to a depth of twelve centimeters, a small polypoid growth was encountered, implanted with a short pedicle. Four centimeters farther back, a second growth, flattened in shape was found. Their color was whitish yellow.

The urethral mucosa of the entire posterior urethra had an abnormal appearance. On inserting the tube to the verumontanum a narrow, horse-shoe shaped band of congested mucosa was encountered having its convexity at the right. The remainder of the urethroscopic field was filled by a tumor lying transversely. One-half of this growth was of a pale-rose color; the other half was grayish.

The surface of the growth, which bulged into the lumen of the tube, exhibited a furrowed appearance with small red excavations. Dilated blood-vessels were also noted. On slight withdrawal of the tube a thin septum, running horizontally was noticed. The mucosa above this septum was deeply livid and bled at the slightest touch. Below the mucosa was ulcerated. By manipulation the tumor could be raised, disclosing the ulcerated mucosa. On the inferior surface of the tumor, two faceted appearing spots were observed. The growth was carcinomatous.

Oberländer's Case—Urethroscopic tube number twenty-seven inserted to the extremity of the bulb. In the inferior half of the field was seen a semilunar pale cicatrix. The surrounding mucosa was grayish and sclerotic looking. The entire extent of the mucosa almost to the region of the navicular fossa, presented a similar sclerotic appearance, with several cicatrices. At some points a plicated appearance of the mucosa was noted. There was a glandular urethritis.

Behind and above the semilunar cicatrix a growth was observed. By drawing the penis forward and pushing in the tube the growth could be made to present in the lumen of the tube. The growth was distinctly raspberry-like, being

irregularly mammillated and presenting a bright red appearance.

The tumor was a squamous-cell carcinoma. In Beck's case the growth was found in the neighborhood of a stricture. The tumor presented as a papillary prominence on the superior wall and towards the right side of the urethra. The growth was a freely bleeding one. It was a squamous-cell carcinoma.

The value of the urethroscope in the early diagnosis of urethral cancer can not be overestimated. A review of the literature relative to carcinoma of the urethra discloses the fact that in the vast majority of the cases the growth had advanced to the point of urinary extravasation and fistula before the diagnosis was made. It will be noted in the record of twenty-one microscopically confirmed cases recorded by Basil Hall, that the case of Oberländer's is the only one in which the growth had not recurred within one year from the first operation. In Oberländer's case there was no recurrence twenty-one months after an operation which was fairly conservative—a resection of the urethra. Beck's case was lost sight of. In Carcy's case, in which total emasculation was done, there was no recurrence in ten months, and in one of Montgomery's cases there was no recurrence four months subsequent to an amputation of the penis. In all of the other cases, recurrence was noted within six months.

While from the standpoint of urethroscopy we have but meager data at our command on which to base a diagnosis, we may safely consider any easily-bleeding, fungating or raspberry-like growth in the urethra of a man who has attained the age of forty years to be under suspicion. A small piece removed via the urethroscope is sufficient for the purpose of an exact microscopic diagnosis. Under such diagnosis, early operation is possible with a proportionately more favorable prognosis.

Sarcoma of the Urethra—Of all new growths found in the urethra, sarcoma is most uncommon, there being but a few reported instances. To Hoening (Berlin Klin. Wochenschrift, 1869, page 55) belongs the credit for the first reported case. Rizzoli (Jour. de med. de Bruxelles, 1875), Tillaux

(Annals de gynecologie, 1889), Buttner (Zeitschrift fur Geo und Gynaek., Bd. XVIII, page 122), Ehrendorfer (Centralblatt fur Gynaek, 1892), Lejars (Lecons de Chirurgie) and Albarran have all reported well-authenticated cases of fibrosarcoma. Hall and Frick (Jour. A. M. A., June 23, 1906) record a case of melanotic sarcoma which they assume from the postmortem findings must have originated in the urethra. The case is unique but the clinical evidence is well supported.

Legueu makes the statement, based on his investigations, that sarcoma occurs exclusively in the adult female. In the case reported by Hall and Frick, the patient was a male, 33 years of age.

Fibro-sarcomata of the urethra pursue the same indolent course that characterizes their growth in other parts of the body. Their appearance is in no way typical and their clinical differential diagnosis from fibromata is almost impossible.

On account of their almost exclusively appearing in the female, their large size and the ready diagnosis of their presence by ordinary methods of clinical investigation the use of the urethroscope is never demanded. We have included mention of them in this paper merely for the sake of completeness.

EXTERNAL URETHROTOMY FOR ACUTE RETENTION OF URINE, CAUSED BY IMPACTION OF STONE IN THE PENILE URETHRA—F. T. Woodbury (N. Y. Med. Journal, April 18, 1908) reports a case of acute retention in which the patient felt a hard lump in the perineum, which gradually passed forward, until within two and a half inches of the meatus. The urethra was irrigated with normal salt solution; then a 4% solution of cocaine was injected, and finally an injection was given of olive oil. As attempts to express the calculus by external pressure failed, as did also attempts to crush it by means of forceps, the patient was anesthetized and a very irregular stone was removed through the external urethrotomy wound. The urethra was closed over a catheter with two fine silk sutures and the outside wound was drained with gauze soaked in alcohol. The patient made a good recovery.

THE ETIOLOGY OF PERINEPHRITIC ABSCESS.

IN the etiology of perinephritic abscess one has to deal with a predisposing and a determining cause. The former is dependent upon the anatomical makeup of the region and depends upon the amount of fat contained in the perirenal tissue. It is probable that girls have a larger amount of perirenal fat than boys and, in reality, abscesses in this structure are certainly more frequent in little girls. In adults the contrary holds true, because males are more frequently the subject of this process than females.

Since of recent years puerperal infection has been practically done away with, males, in spite of the lesser development of the perirenal fat, are more exposed than the female to perinephritis and naturally traumatism plays an important part in the etiology. But, in children, where both sexes are about equally the subject of accidents, the anatomical conditions of the renal region preserve all their value from the etiological point of view, and the involvement of the perirenal sac by fat being more marked in little girls than in boys, the proportions are reversed.

Perinephritic abscesses are rarely encountered in babies, although Weber encountered it in the foetus and another case is recorded by Gibney in a child five weeks of age. Nevertheless, it is quite true that in a large majority of cases, when this process has arisen in children, the subjects have been over five years of age.

Arthritism, which plays so important a part in the formation of renal calculi, must certainly be considered as a predisposing cause of perinephritis, and, in reality, many of these abscesses result from a renal fistula produced by calculi in the kidney, renal pelvis or ureter.

From an etiological view point, the division into primary and secondary perinephritis is about as comprehensive as possible, but certain considerations should be made in this respect. By the term of primary abscess one should under-

stand that the suppurative process develops at once around the kidney and is not the result of an extension of an inflammatory process seated in a neighboring organ. A secondary abscess owes its origin to a lesion of some viscus, usually in direct relation to the kidney, or it may be merely the propagation of the neighboring suppurative process.

A primary perinephritic abscess may occur after an infected wound in the lumbar region, or, on the other hand, its etiological factor may be a general infection of the organism. In this case bacteria, or their toxins, are brought by the blood to the perirenal region, and many years ago, Albarán demonstrated this mode of abscess formation. After injecting a culture of the colon bacillus, or the staphylococcus into a rabbit's ear, he traumatized the perirenal tissue and a suppurative process became localized at this point. In children all the infectious diseases have been known to have suppurating perinephritis as a complication.

A simple operation on the external genital organs, an infection of the bladder, etc., have been known to produce a perirenal abscess, but, in well defined cases, the history of a traumatism is usually found. The trauma is usually preceded by a collection of blood, which undergoes suppuration.

A point relative to traumatism, which writers have neglected, is the considerable lapse of time ensuing between the appearance of the abscess and the accident. As much as two or three months may elapse, and in some instances, even one or more years, which gives a particular aspect to these cases, and, although, reference has been made to this fact, we believe that no attempt has been made to explain it. The influence of cold may, perhaps, explain a certain number of cases. The soil having been prepared by a former trauma, cold will act as a direct instigator for the production of inflammatory accidents, and, consequently, we believe that the combination of trauma and cold should be considered in the etiology.

As has just been stated, a perinephritic abscess almost invariably occurs a considerable length of time after the trauma, and, for this reason, patients or their friends are likely to forget the occurrence of an accident some months

before, and, consequently, are apt to consider a chill or exposure to cold, which, perhaps, has recently taken place, as the real cause of the abscess.

In the case of secondary perinephritis, the kidney is the organ to be incriminated as giving rise to the process. Pyelonephritides have a particular predisposition to give rise to perirenal suppuration. In both adults and children a pyelonephritis usually owes its origin to a renal lithiasis, and it is well known that this affection is far from being infrequent in young subjects, a point upon which we would insist because we believe that it is not generally recognized by the majority of the profession. Undoubtedly, it often passes by unnoticed and only gives evidence of its presence by some complication, the latter not infrequently being a perinephritic abscess.

Renal lesions may extend to the fatty capsule surrounding the kidney, either by continuity or contiguity, but usually it is the latter, and, in this case, the extension of the process takes place by the way of the lymphatics. Albarran appears to have conclusively demonstrated experimentally, that bacteria may directly pass through the fatty capsule by following the lymphatics or even into the renal pelvis.

Occasionally, the calculi located in the calices, or in the renal pelvis, set up an ulcerative process and the resulting renal fistulæ gives rise to a perinephritic abscess. Such fistulæ are more prone to be found on the posterior aspect of the kidney and through them the pus and urine invade the cellular tissue around the kidney, giving rise to the inflammatory process. These fistulæ may be quite large, at any rate sufficient to allow the calculus to escape into the perirenal fat, and it will then be met with in the pus when the abscess is opened.

Whether or not a renal tuberculosis can give rise to an acute perinephritis is a question, and in most cases where this occurs, one is most probably dealing with a mixed infection so frequently encountered in tuberculous urinary patients.

Perinephritic abscesses may also have as a starting point the gall bladder or the intestine, and, when this is the case, they are the result of biliary calculi and very rarely from a perforation of the colon. It should be pointed out that

usually the intestinal perforation found in these cases of perirenal abscess are secondary rather than primary. The extension of pleuropulmonary infections to the perirenal fat probably takes place by way of the lymphatics and the veins going through the hiatus described by Farabeuf; and lastly, we would mention appendicitis. All who have studied perinephritic abscesses have recorded cases following a suppurative process in the appendix, and, it is important to bear in mind that an appendicitis may have a perinephritic abscess as a complication, both in children and adults.

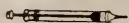
Original Abstracts and Translations

THE USE OF BIER'S HYPEREMIA-METHOD IN UROLOGY—Professor E. R. W. Frank, of Berlin (Med. Klin., May 24, 1908), gives an interesting summary of his experience with Bier's method of hyperemia in urological practice. He began in 1905 by applying the method in acute gonorrheal epididymitis, but his results were not encouraging. He persisted, however, in his experiments as he was convinced that the method was of value. In inflammations of the testicle, constriction has been used extensively, and in Frank's opinion acts by producing hyperemia. But as the constriction affects only the parts situated beyond the band, it does not assist those structures which are situated above the strapping. For this reason, the constriction bandage does not prevent the continuation of infection in the prostate and the vesicles. On the other hand, the method of applying vacuum cups is of considerable value, for by this means we can produce hyperemia in the deeper genital organs. Klapp showed that in treating tuberculous fistulae by Bier's method one could materially affect deeper glands or bones from which the fistula was derived. This deep action of Bier's cupping-method is extremely valuable in the treatment of tuberculosis of the internal genitals and of gonorrhea of the posterior urethra and annexia. In acute infections of the urethra, a cupping-bell should be used, and a bandage should

be avoided. In fact, Bier's bandage was found of value only in gonorrheal rheumatism, in which it produced very good results.

Excellent effects were obtained by Frank in 60 cases of bubo by applying a Bier's cup for 20 minutes, at intervals of two hours. The pains rapidly diminished and the purulent collection was absorbed within a few days. In this way Frank has been able to cause the disappearance of bubos as large as a fist, within eight or ten days. If there was fluctuation, and a point where the skin was inflamed and thin, a simple puncture was made. No puncture was made, however, if the skin was normal over the fluctuating bubo. In the latter class of cases no dressings were used, while in the former a simple wet dressing was applied and a thin brownish-red purulent discharge was seen to exude from the opening. The temperature rapidly fell after the application of Bier's cups and the glands quickly resumed their normal size. Frank thinks that Bier's method is the best of all measures thus far used in the treatment of bubos.

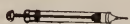
The method of hyperemia is less useful in the treatment of acute urethritis, and in some cases gives rise to painful lymphatic obstruction. In cases of localized infiltrates around the urethra, however, Bier's cylindrical penile cup is of value. An important field for this method of treatment are cases of beginning tuberculosis in the internal genitals or the testes. Frank reports several cases in which he was able to avoid operations by the application of a special cup to the testicles and the scrotum. These cups were applied every two hours for twenty minutes at a time.



GONORRHEAL RHEUMATISM CURED BY SEMINAL VESICULOTOMY.—Eugene Fuller (N. Y. Medical Journal, May 30, 1908) reports twenty-three cases in which he performed seminal vesiculotomy for the relief of gonorrheal rheumatism. The idea of opening the vesicles for this condition originated with the author in 1904. In all the twenty-three patients, the operation had a profoundly beneficial effect upon the rheumatism. In all these patients there was a seminal vesiculitis to account for the focus from which the

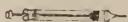
systemic absorption originated. Out of the twenty-three cases, seventeen patients were cured as the direct result of the operation. Of the remaining six, two got well; but a year ago each contracted a new attack of gonorrhea and the rheumatic symptoms reappeared. Two more patients indulged in sexual intercourse immediately after leaving the hospital and suffered a relapse of the rheumatism, owing to a recurrence of the vesiculitis. Two very chronic cases relapsed, one after being well eight months after operation, the other after three months. In both, these seminal vesicals became tender and inflamed again.

In the acute bedridden cases, the effect of the operation was most marked. In twenty-four to thirty-six hours, the pain in the joints disappears, and by the fourth day, the swelling. In chronic cases pain disappears in a week to ten days. Massage and passive movements must be used to finish the treatment. In some cases, in the third week after the operation, there is a slight relapse of the pain, due to a premature closure of the incision before a complete elimination by drainage of all the toxin has taken place. In all such cases, the author was able to feel tenderness and swelling in the vesicles. These disappeared under rest, diet, tonics, etc. If not, it may be necessary to reopen the wound and reintroduce the drainage tubes. Before performing the operation, the author endeavored to exclude tuberculosis by performing the tuberculin test. From the results obtained, he now feels that the efficacy of this form of treatment is established.



THE USE OF GONOCOCCIC VACCINE IN TWENTY-SIX PATIENTS—Edgar G. Ballenger (Journal of the Amer. Med. Ass'n, May 30, 1908) used gonococcic vaccine in connection with other treatment in twenty-six patients, and found that his results were more prompt than they had been with the routine methods. A free streaming of lymph, fresh from the circulation and laden with opsonins, should be promoted in every focus of infection. In the prostate, the ferments liberated by the pus cells convert the proteids into albumoses which the author found to be present constantly in the in-

flamed prostate, and to be of distinct value in the diagnosis of prostatitis. He warns us that during the inoculation of vaccines, we should not massage the prostate, as an overdose may be thrown into the system owing to the auto-inoculation which may follow such massage. He used the stock vaccine marketed by a firm in Philadelphia, and believes that just as good results are obtainable with stock vaccine as with so-called personal vaccine. His best results were obtained with doses varying from 5 to 50,000,000 gonococci. In acute gonorrhoea, the initial dose should not exceed 5 to 10,000,000 gonococci. The injections should be made subcutaneously in the buttock. In chronic cases, it is well to begin with 15,000,000, and gradually increase, repeating injections every five to eight days. In acute cases, the effect is not very marked, but in one instance, reported by the author, it seems to hasten the cure. It is much more efficient in chronic cases, but even in these, local treatment must be continued.



THE DEVELOPMENT OF THE MUSCULAR LAYERS OF THE BLADDER, PARTICULARLY OF THE MUSCULAR STRUCTURES OF THE TRIGONE AND THE SPHINCTER—Ricardo Versari, of Palermo (*Annales des Maladies des Organes Génito-urinaires*, 1908, Vol. 1, Nos. 7 and 8), examined the muscular structures in the bladders of twenty-one fetuses. He found that the sphincter in the bladder consisted of smooth muscle fibres, which constituted a separate structure independent of the middle or circular layer of the muscular tunic of the bladder, as well as separate from the circular muscle-fibres of the urethra. The sphincter seems to be formed of a urethral and a trigonal portion. The urethral portion is in the form of a ring which surrounds the beginning of the urethra. The posterior bundles of the sphincter gradually spread upward over a part of the trigone and downward along the posterior wall of the urethra. The muscle layers of the trigone are formed at the base by a portion of the muscular coats of the ureters.



BOOK NOTICES



A SYSTEM OF SYPHILIS, in six volumes. Edited by D'Arcy Power and J. Keogh Murphy. Introduction by Jonathan Hutchinson. Volume I, History. Microbiology, general pathology. Early manifestations, male. Early manifestations, female. Congenital syphilis. Oxford University Press. London, 1908. Price, \$13.50 per volume.

The growing importance of syphilis as a social disease and the growing appreciation of this importance by the medical profession is seen from the fact that the time seemed propitious to both editors and publishers to undertake the publication of this monumental work in six large volumes devoted exclusively to this one disease. The work indeed is a splendid one, both in conception and in execution. The illustrations are magnificent, many of them being direct color photographs, which we believe are used for the first time in this work to illustrate clinical conditions. We have no doubt that every syphilologist will endeavor to acquire this great work.

GENITO-URINARY DISEASES AND SYPHILIS. By Edgar G. Ballenger, M. D., Lecturer on Genito-Urinary Diseases, Syphilis and Urinalysis, Atlanta School of Medicine; Genito-Urinary Surgeon to Presbyterian Hospital, Atlanta, Ga. Published by E. W. Allen & Co., Atlanta, Ga., 1908. 86 Illustrations. \$3.00.

This is a small book intended for the general practitioner and cannot be said to present any elements of individuality or originality. On page 30 the author recommends to dissolve nitrate of silver in liquid albolene and olive oil, and to use this as a lubricating solution. We fail to see how the author dissolves the nitrate of silver in the albolene and olive oil, nitrate of silver being insoluble in either mineral or vegetable oils.

DIE PRAXIS DER HAUTKRANKHEITEN. Unna's Lehren. Fur Studierende und Arzte, Zusammengefasst und Dargestellt von Dr. Iwan Bloch, Berlin. Mit einem Vorwort Von Dr. P. G. Unna in Hamburg. Mit 92 abbildungen. Urban & Schwarzenberg, Maximilianstrasse 4, Vienna.

Unna is one of the world's greatest dermatologists, and in spite of his tremendous literary activity he has never collected his teachings in the form of a text book. Dr. Iwan Bloch, the well-known author of *The Origin of Syphilis*, has undertaken the role of being Dr. Unna's Boswell, and we at last have Unna's views and teachings collected and presented in the form of a systematic text book. The work is well done, the style is excellent and we have no doubt that the book will prove of value to every one who has made dermatology his specialty. We have been so spoiled by the beautiful color pictures of the American text books on dermatology that the cuts in black in this book seem to be out of date.

DISEASES OF THE SKIN. By George Thomas Jackson, M. D., Professor of Dermatology, College of Physicians and Surgeons, New York; Consulting dermatologist to the Presbyterian Hospital, New York, and to the New York Infirmary for Women and Children. With 99 illustrations and 4 plates. Sixth edition, thoroughly revised. Lea & Febiger, New York and Philadelphia.

Professor Jackson's hand book is an honored member of the rather pro-

lific family of small text-books on dermatology. In this edition new articles have been added upon black tongue, dermatitis verrucosa, keratosis follicularis contagiosa, etc.; also a number of new photographs. The volume is one of the best in the English language for the general practitioner and the alphabetical arrangement makes it very convenient as a reference book.

THE TREATMENT AND PROPHYLAXIS OF SYPHILIS. By Alfred Fournier, Professor at the Faculty of Medicine, Member of the Academy of Medicine, Physician to the St. Louis Hospital, Paris. English translation of the second edition, revised and enlarged, by C. F. Marshall, M. D., F. R. C. S. American edition, revised and corrected, with an appendix by George M. Mackee, M. D. Rebman Company, 1123 Broadway, New York. Price, \$5.00.

This volume consists essentially of two separate treatises, and in French they have been published as two separate books. Prof. Fournier's writings have become classics and thanks are due Dr. Marshall for having made them accessible to the English reading public. The translator's notes and additions add to the value of the book, as does the appendix of Dr. Mackee. Of course it goes without saying that no syphilologist can afford to be without Professor Fournier's volume.

THE SEXUAL QUESTION. A scientific, psychological, hygienic and sociological study for the cultured classes. By August Forel, M. D., Ph. D., LL. D., formerly professor of psychiatry at the University of Zurich. English adaptation by C. F. Marshall, M. D. Rebman Company, 1123 Broadway, New York. Cloth, \$5.00.

This is one of the most important, if not the most important books that have appeared on the subject of human sexuality. While thoroughly scientific, the author does not mince words, does not beat about the bush, but calls things by their right names and fearlessly ignores theologic dogma or social superstition. The volume is not intended for physicians exclusively; it is written in non-technical language and any educated layman will find in it much that is of value and interest. The mechanical make-up of the book is excellent.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS. By Jay Frank Schamberg, M. D., Professor of Dermatology, Philadelphia Polyclinic and College for Graduates in Medicine. Octavo of 534 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, \$3.00 net.

The title of the book suggests its scope, and the prominent feature of Dr. Schamberg's work is the space devoted therein to the eruptive fevers, the chapter devoted to them occupying 138 pages. The classification of skin diseases proper is the conventional one, and in their handling special attention has been devoted to diagnosis and treatment. The numerous illustrations, chiefly original, are well executed and the mechanical make-up of the book leaves nothing to be desired.



